COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 22 NEW YORK, THURSDAY, SEPTEMBER 7, 1922 Number 10

Wanted—A Policy

DAZED with the overwhelming defeat they have suffered, operators are asking each other: How in the world did it happen? How did Lewis do it? Look back over the past six months, check up this generalization. Lewis fused all the issues raised by the operators —the check-off, wage reductions, district vs. other forms of settlements, open shop, broken contracts— and made one issue to put before his men. He told them that all these things meant one thing and only one thing to them—disruption of their cherished UNION. He was on the defensive on every issue save one, that of the broken contract, yet by selling the idea to his members that the whole strike was precipitated by the operators for the purpose of tearing down the miners' defense, their organization, which alone stood between them and "poverty, suffering, degradation," he unified his ranks and won his fight.

The operators, on the other hand, scattered their fire. They divided at the start on the matter of whether to meet in a Central Competitive Field conference. Some posted notices of one wage reduction, some another, some none at all. Some stressed the issue of the check-off, others did not. A few groups of operators handled their own situations with finesse. They built up records that standing alone were unassailable. But no two built the same structure, and but the flimsiest liaison was maintained. There was no unity of action. There was not, and is not now, a leader around whom the operators could or would rally. No rallying cry was raised to hold them.

The story is not complete without mention of the very obvious fact that what has been said about the lack of unity among the operators can be said with equal truth with respect to the administration at Washington. Taken as a whole the administration offered no help. Of course it could not have been expected to take sides, but it might at least have been so led that it could have clarified the issues for the public whom the government represents. Instead there has been a policy of in and out and in again.

If the operators are dazed over the final outcome, the public is amazed. Slowly—only during the past few weeks—has the realization of what it means to the man on the street been dawning on that individual. The public is but now coming to appreciate what it portends to this country to have such arrogant power in the hands of one man. It is not that he is a labor leader— the reasoning and the attitude would and should be the same were that man on the other side. Therein lies the chief danger to Mr. Lewis. He has overstepped the bounds and it will be his undoing.

History has recorded more than one victory gained at the peace table by a contestant defeated on the battlefield. The peace table for the bituminous-coal industry is set for Cleveland and the date is Oct. 2, next. The program is that the United Mine Workers and operators from all organized soft-coal fields will there and then assemble to consider ways and means of negotiating their next working agreements and contracts. This much is specified in the arrangement to which Lewis fixed his signature at Cleveland on Aug. 15 and to which some of the coal operators have agreed.

Not all the operators have signed these terms. Illinois, central Pennsylvania and others have not so obligated themselves. Nevertheless they may attend, and to this end they have been careful not to go on record to the contrary. This much may be said for this prospective conference, the purpose of which is ostensibly to insure future peace in the industry—the operators may as well stay away as attend in their present disorganized state of mind. Unless the soft-coal producers at Cleveland next month present a solid front, unless they can match organization with organization, they go but to listen to terms.

Clearly enough if attendance among operators is confined to the few who actually signed a "Cleveland" agreement, Lewis will give it scant attention. To some among the operators this meeting offers high hope of constructive action, but to Lewis, an opportunist, it will be just what the developed circumstances may afford.

Should a substantial majority of soft-coal men elect to participate, and they doubtless will be encouraged so to do, the result will be a fiasco for them unless they go there united on a program, sufficiently cowed by their present defeat to accept national leadership. There is small chance that the operators can dominate the situation, but there is a chance to divide the honors.

Less than a month remains before this opportunity is opened. In a struggle of force, Lewis won hands down. Can he repeat in a battle of wits?

The Last Stronghold

WHEN last week the Pittsburgh Coal Co. signed the Cleveland agreement with the United Mine Workers the last of the opposition to the union in this strike was crumpled. The contest between these two has been a contest of force from the beginning, with the odds all on the side of the union. Fighting force with force is all right when the opponents are of comparable strength, but when the United Mine Workers matches strength with one coal company, even though it be one of the very largest, the ultimate end is never in much doubt.

The world loves a fighter, and it respects a fighter who knows when he is beaten. The Pittsburgh Coal Co. could have held out to the limit of its financial resources and the country have had all the coal it required this winter, since car supply and not mines and miners will set the total output. We will wager that the victorious union has a wholesome respect for the company that stood it off until there was no point in further fighting, even though the union deserves little credit for this particular victory.

Potentiality of the Anthracite Situation

NOTHING could be plainer, in the light of recent events, than the dynamite concealed in the anthracite situation. It required a sudden awakening on the part of the East to the hopelessness of the anthracite situation a few weeks ago to really arouse the public and Congress to the real facts of the coal strike. Hard coal goes to the homes and when their security is threatened the public wakes up and speaks.

Whatever form the wrath of the public may take and whatever legislation may be aimed at coal, the mainspring of motive may be traced back to hard coal. Immediately the majority of the bituminous-coal mines resumed operation and the hard-coal mines remained idle, the public grasped the significance of the situation. It was able for the first time to see behind the big talk of the union, which has pushed the anthracite controversy into the background for five months, and then to get a true perspective.

No single group of coal operators this year has kept its case so well in hand and the issues so clear as have the hard-coal men. The circumstances of the strike and the willful misrepresentation of the union have until recently prevented them from realizing the deserved benefits of their well-conceived efforts. When they narrowed the controversy down to an admission of defeat on the matter of wages and asked only that they and the public be protected from future disruptions to mining and be assured of continuity of household fuel supply, the public saw the point and rallied to their side. In a clear field, unencumbered by a nationwide soft-coal strike, the anthracite-coal operators could have won this year. But then had there been no soft-coal strike it is a fair assumption that the union would have refrained from a trial of strength in the hard-coal regions. They used anthracite as a sympathetic strike to help win the other.

What Will Happen in April

FORECASTS always are dangerous, and it would not be well to attempt to say just what will happen next April. Most persons are disposed to believe that by that time the market will be glutted with bituminous coal and that wages in the non-union regions being lowered it will be impossible for the operator in union districts to offer the 1920 scale, for without contracts and with lower wages in competing districts which are fully able to supply at least a large part of what coal is needed there will be no possibility of running the mines in union regions more than a day or so in each week.

Increasing business may by that time have modified the situation so that the prospects will be brighter for greater activity than has been outlined. Car and locomotive shortage and severe winter may prevent the accumulation of stocks by consumers. Business activity may prevent the non-union fields from cutting wage scales as low as in 1921, and the increased cost of living may make less forcible the call for deflation in mine wage scales.

The operators who have been calling for arbitration doubtless are perfectly willing to have the issue based not on present conditions but on those prevailing about the time of the proposed award. Arbitration of the bituminous scale is now, however, unlikely. The best we may expect to have is a report on the subject at issue, but when it comes it will give utterance as to later conditions than those now confronting the industry, and they, as has been said already, may be more favorable than those now being faced. The operators' proposal has been entirely equitable even if it should be found in 1923—which is perhaps not likely—that we are on the crest of an inflation wave as high as that in 1920.

Some increase in the demand for bituminous coal undoubtedly will arise from the displacement of hard coal with soft during the coming winter. British coal will hardly come here in quantity, as the price is likely to rise to such a height as to prove a deterrent. Efforts to place the domestic coal of Great Britain in the American market as a substitute for anthracite should and is likely to fail. The coal used for house heating in England is a fuel that will burn in an open grate. It is not what we would term anthracite, for among other qualities it has that of giving a plenitude of smoke. It also cokes like the bituminous or semi-bituminous coal that it is.

Unless the bituminous coal supply fails it is useless to bring coal from Wales or Durham to make up for the anthracite deficiency, except perhaps coal from Pembrokeshire. Better coal than most of it for domestic heating can be found in the New River, Pocahontas and central Pennsylvania regions. It must be remembered that more than 12 per cent of the coal in the United States other than anthracite—that is, that which in a broad classification is known as bituminous—is used for domestic heating. In fact large areas of the country have never used any other coal for that or any other purpose.

Is Henry Ford Learning?

IN THE boom year of 1920 the greatest scandal in coal prices was raised by the indiscriminate, wild bidding for coal, particularly in the eastern Kentucky fields, by the agents of Henry Ford. As many as five or six buyers representing this manufacturer were in each field, unknown to each other, commissioned to get coal and get it at any price. They bid against each other, and because they were after almost unlimited tonnage they put the price to the sky for other buyers. Coal producers will long recall the orgy of buying that Ford staged in that memorable year. For the heights reached then the responsibility is generally placed on Ford's practice of buying before the coal was dug and over the head of every other user.

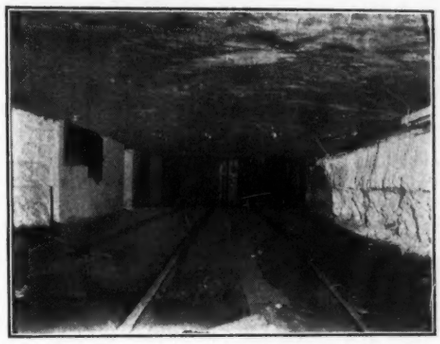
Now comes the same Mr. Ford with the announcement that he will close his plants before he will pay the robber prices the coal men are asking, that he will cease the production of flivvers rather than take coal away from the needy people of the Northwest. Such compassion touches the heart. For one who has never hesitated to bolster the labor market with wage increases and who has hitherto been the support of high coal prices this change of heart is noteworthy.

One cannot help wondering whether the sagacious Mr. Ford has not again sensed a slump in demand for his product and is not taking this method of letting down from peak production. He has never been known to permit a matter as small as $1.50 in the cost of a single car to interfere with his operations.

TOO MUCH OF THE ENERGY of the business revival seems to be concentrated at the mourners' bench.—*Canton Repository.*

Haulage, Hoisting and Dumping Practices At Rosedale Mine

BY GEORGE A. RICHARDSON*
Philadelphia, Pa.



Largest Mine Locomotives Made Haul 145 Cars, Each Holding 1½ Gross Tons — Hoisting Shaft Has Coal Well Carrying Coal to Skip-Loading Level — Shaft Capacity 10,000 Tons Daily — Steel Guides — Hilted Sprags

A previous article† has described how trips of coal in the Rolling Mill mine of the Cambria Steel Co. are discharged by rotary dumps into a well in the Elk Run shaft which carries the coal from the Cement seam to the Miller bed, where a hopper delivers it in measured quantities to a trip of mine cars for delivery to the Rosedale coke plant.

FROM Elk Run shaft the coal is hauled directly to Rosedale through a heading 7 ft. high and about two miles long. An interesting feature of this heading is its wonderful roof, which is self-sustaining throughout its entire length. Not a piece of timber of any kind is used from one end to the other including the section under the Conemaugh River. It is one of the longest headings in the country to be maintained without the use of timber.

The track is laid with 70-ft. rail, and, as the loads are heavy, it is supported by wood ties. In every other part of the mine including the working faces steel mine ties are used. It is interesting to note that the latter were developed originally largely to meet the needs of the company's own mining operations. They are used wherever rail sections not heavier than 60 lb. per yard are required.

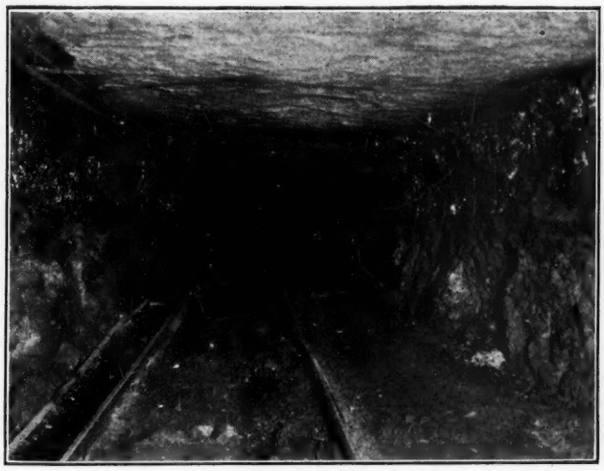
The trips are hauled by electric locomotives, two of these being the largest of their type that have been built to date. They are of the following general specifications: Weight, 35 tons; gage, 45 in.; motors, three 250-volt, each of 125 hp.; height over all exclusive of trolley, 4 ft. 1½ in.; wheelbase, 10 ft.; length over all excluding bumpers, 22 ft.; width overall, 6 ft.; driving wheels, cast iron with steel tires, 36-in. diameter; wheel tread, 3½ in.; wheel flanges 1x1 in.; gear ratio, 15 to 74; control, pneuma-electric and arranged for dynamic braking; brakes, hand and "straight air"; ventilation of motors, forced. Each of these two 35-ton locomotives will haul a trip of 145 cars, all of which have a capacity of 1½ gross tons.

At the Rosedale end of the heading are two shafts

*Midvale Steel & Ordnance Co., Cambria Steel Co.

†"Cambria Steel Co. Drops Coal Down Well, Loads It at Bottom and Hauls It to Ovens," *Coal Age*, pp. 313-317.

NOTE—The illustration which forms part of the title of the article shows the "bottom," or landing, of the manway-supply shaft at Rosedale No. 5, which is 180 ft. deep. The roof is so exceptionally good that it stands unsupported over two tracks as adamant as if arched with concrete.



MILLER-SEAM ENTRIES GO FOR MILES UNTIMBERED

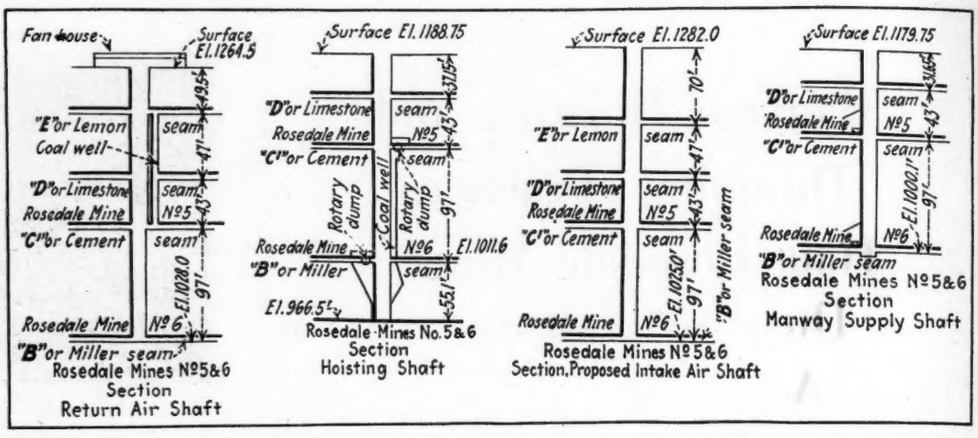
One of the most reliable of roofs, if not the most reliable of any, is that surmounting the Lower Kittanning or Miller seam. A little "buckwheat" slate near the outcrop is the only trouble, and the Miller seam in the Rosedale mine does not outcrop. Hence miles of heading like this without timber or supporting steel can be seen in the mines in that seam around Johnstown.

ROTARY DUMP IN MILLER SEAM No. 6 SHAFT.

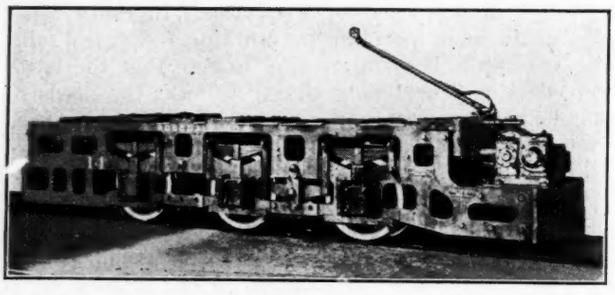
Here the cars from the Elk Run shaft are dumped in a tipple of the pneumatic rotary type at a speed of 8 cars per minute. In one hour 480 cars can be discharged. Each dump holds two cars. The dump is tilted to the dumping position and back in 6 seconds, the stroke being cushioned on air. Four pneumatic cylinders actuate this dump.

Shaft Cross-Sections

The coal well in the hoisting shaft is, it will be noticed, dug into the side whereas in the Elk Run shaft the shaft itself was used for the passage of coal.



known as Nos. 5 and 6. No. 5 shaft is the man-and-supply shaft. No. 6 is used for hoisting coal. The dumping equipment at the latter shaft is of the pneumatic rotary type, the specifications being quite different from those at Elk Run. Before considering them,



THIRTY-FIVE TON ELECTRIC MINE LOCOMOTIVE.

This is the largest locomotive of its type ever built for mine service. It is used for hauling trips of 145 cars holding 3,360 lb. each from Elk Run shaft to the Rosedale shaft. It runs on 70-lb. rail, the weight being distributed over six wheels. The gage of the locomotive is 45 in., the wheelbase 10 ft. and the over-all width 6 ft.

however, it is well to mention the conditions at the point of discharge.

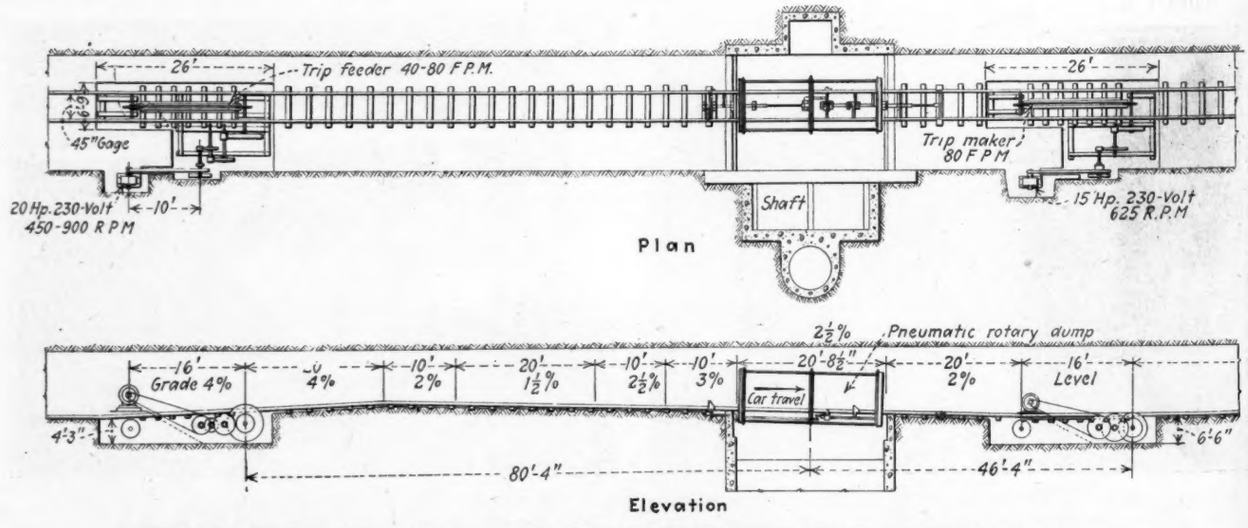
Provisions have been made for receiving coal from both the Cement and the Miller seams in the Rosedale field. Hence two rotary dumps have been provided. The first or upper one in the Cement seam dumps into a coal well which allows the coal to drop down into a storage bin below the level of the Miller seam as shown in a cross-section of the shaft. The dump in the Miller seam discharges directly into another storage bin on the opposite side of the hoisting shaft.

These dumps hold two cars and are designed to operate at such a speed that 8 cars per minute can be dumped continuously, or 480 cars per hour. The actual time necessary for dumping the loads and returning the empty cars to an upright position is 6 sec. Air is used to operate these dumpers, four pneumatic cylinders being provided which permit of the rapid and positive operation of the dump. They are so constructed that each stroke is cushioned on air.

The car hauls used for delivering cars to these dumps are designed each to handle trips of 120 loaded cars. They are able to start a trip from rest and bring it to a speed of 72 ft. per minute, maintaining that speed on a 1 per cent favorable grade. They are operated by a 20-hp. motor. Similar equipment is used for handling the empty cars when they leave the dumps.

The coal from the dumps goes into two weigh pans, one for each dump, each consisting of two units, and is weighed by automatic recording scales.

Cut-off gates control the flow of coal into the measuring pockets. Each dump has two of these. They are

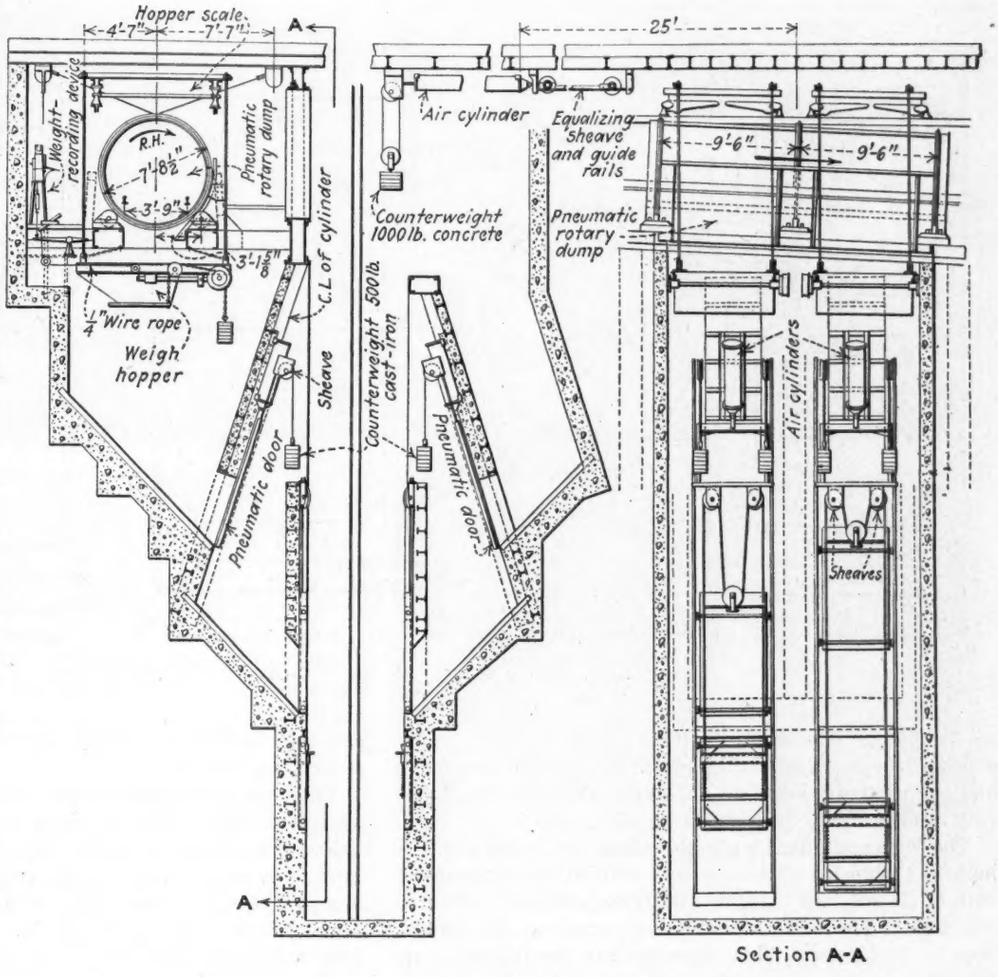


TWO-CAR ROTARY COAL DUMP AT FOOT OF MAIN HOISTING SHAFT (ROSEDALE NO. 6.)

The dump is operated by air, four pneumatic cylinders being provided which permit of its rapid and positive operation. Each stroke is cushioned on air. The car hauls placing the cars at the opening of the dump will handle 120 loaded cars, bringing them to a speed of 72 ft. per minute. The trip feeder is driven by a 20-hp. and the trip maker by a 15-hp. motor.

Skip-Filling Arrangements

Coal comes to the skips from two sources, the rotary dump on the left and the coal well on the right. The former is fed by cars filled for the most part at the Elk Run shaft (Rolling Mill mine) and also from the workings in the Miller seam at Rosedale (Rosedale No. 6). The latter takes care of coal from the Cement seam at Rosedale (Rosedale No. 5). Arrangements are made to weigh the contents of each car separately. For this purpose weigh hoppers or pans are placed under half of the rotary dump.

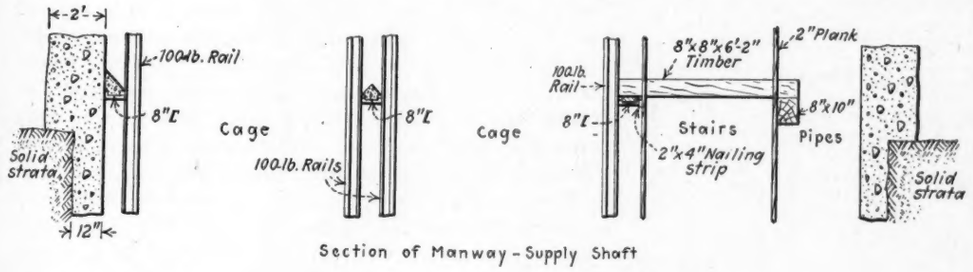


operated by air, the controls being at the mine level.

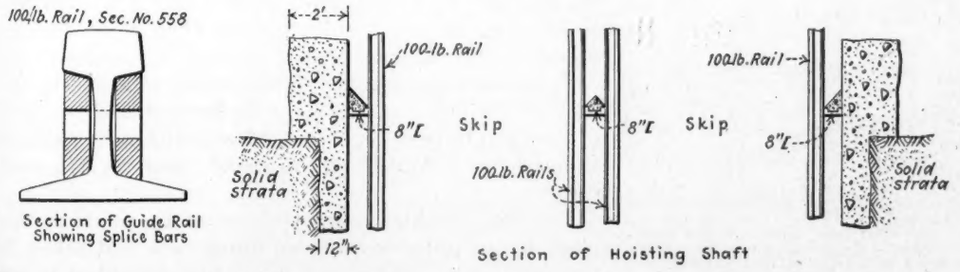
Each dump has also two loading gates to control the flow of the coal from the measuring pockets into the hoisting skips, which have a capacity of 8 tons. These gates are of the safety type and so designed that they stand open only when the skip is in the loading position at the bottom of the hoisting shaft. The weight of the skips and counterweights operate the gates automatically so that each skip loads itself when it lands at the bottom. If by any chance the counterweights should become loosened, the gates would drop to the lowest position, closing the openings.

No. 6 shaft is 232 ft. deep. Over it stands a steel headframe 175 ft. high. The coal is hoisted up this shaft and dumped into a large storage bin at the top of the building which houses the coal-washing apparatus. The handling of the coal from this point on will be treated in a separate article to appear at a later date.

The shaft has two compartments so that the hoisting is balanced, the empty hoist aiding in the raising of



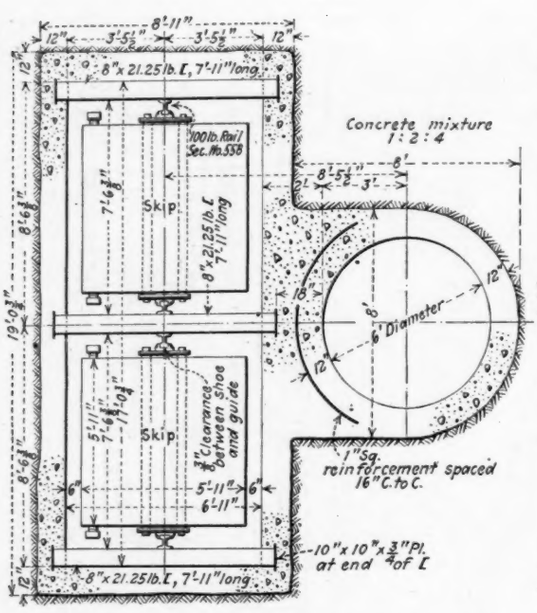
Section of Manway-Supply Shaft



Section of Hoisting Shaft

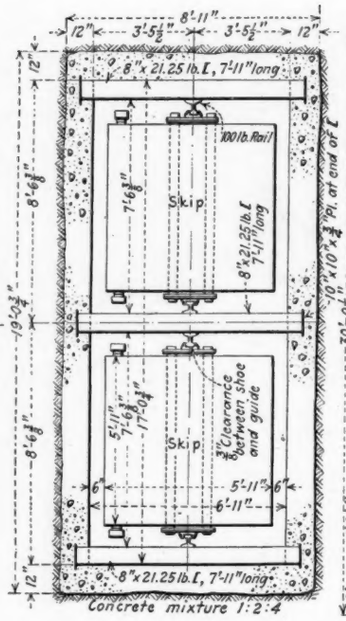
Rosedale Shaft

Vertical sections of manway-supply shaft and hoisting shafts showing manner of placing guide rails. Splice bars are used to connect these rails as in railroad service. Sections are given for shaft both in solid strata and in surface material.



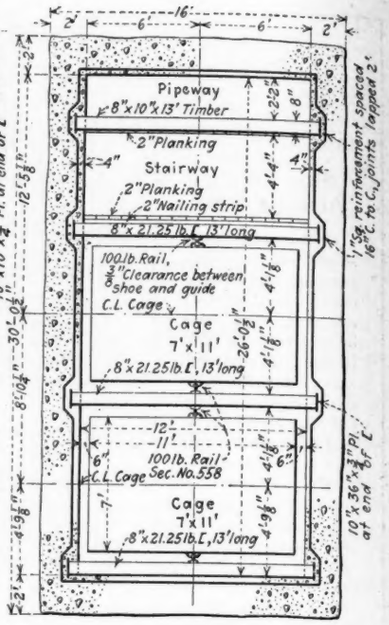
MAIN HOISTING SHAFT WITH COAL WELL

From a point below the Cement seam to a point above the Miller seam. Note the 100-lb. railroad guides, two to each skipway.



MAIN HOISTING SHAFT

Mines 5 and 6. Cross-Section of shaft through solid strata above Cement seam.

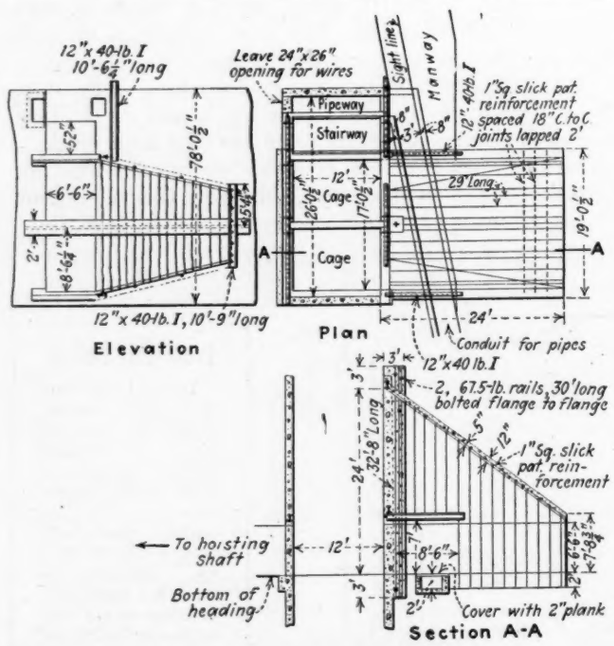


MANWAY SUPPLY SHAFT

Through surface soil. In solid strata concrete is only 1 ft. thick and mix 1:2:4.

the full skip. The hoist, itself, having a cylindro-conical drum is located in a building at one side of the shaft and is operated by a 1,000-hp. motor working on a 2,200-volt 3-phase 25-cycle current at 370 r.p.m.

The original specifications called for equipment to handle 17,000 lb. (8 long tons) of coal per trip at the rate of 36 sec. per trip, or 100 trips per hour, totalling 750 tons. The delay allowed for dumping and loading was 10 to 12 sec. This capacity has been greatly exceeded, and the skips are able to handle 20 tons per minute, or nearly 10,000 long tons per day of eight hours. The level of the skip dump is 125 ft. above the ground, making the total approximate travel a little more than 350 ft.



LANDINGS IN ROSEDALE MANWAY-SUPPLY SHAFT

Openings have been made both at the Cement and Miller seams for the unloading of rails. These openings are 24 ft. high at the edge of the shaft and taper down to 7 ft. 8¾ in. They do not at the top extend the full width of the shaft but only 4 ft. on each side of the shaft center line. They increase as they leave the side of the shaft, the width being 7 ft. 6½ in. in the clear where the taper ends.

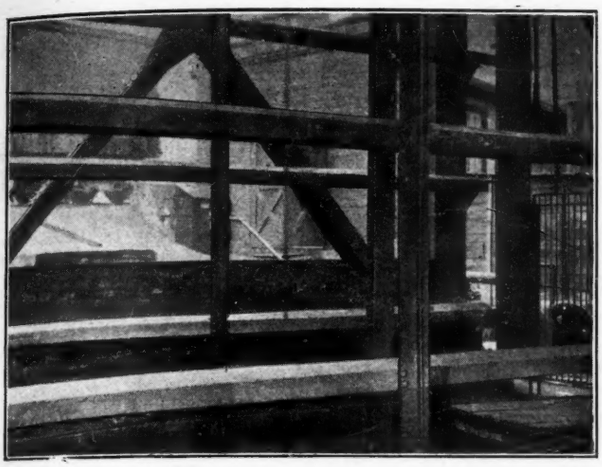
The man-and-supply cages operate in a double-compartment shaft, 170 ft. deep. The hoists each have cylindrical drums 7 ft. in diameter driven by 250-hp. motors operating on a 2,200-volt 3-phase 25-cycle current. The cages have been designed to handle a load of 11,000 lb. and can raise 600 cars of rock per day. The hoist will also lower approximately 11,000 mine props daily (25 in a car) in addition to rails, men and miscellaneous supplies.

One of the most interesting features at these shafts is the installation of 100-lb. standard-rail steel guides. This may be said to be a revolutionary development, for up to the present time it has been thought that it was not safe to use steel for this purpose.

In the past it was believed that safety catches could not take a tight grip on the guides if made of steel, and this objection was raised when the use of them was first broached by the Cambria Steel Co. It was only after exhaustive tests had been made which showed conclusively that a cage could be stopped on steel guides in a distance of 1½ to 2 in. that the installation finally was approved. These guides have given absolutely no trouble, and they have never failed. Any mining man knows the heavy costs of replacements where wooden guides are used, whereas steel guides will last as long as the mine opening itself. Another interesting feature in the construction of this shaft is the use of steel buntons.

At No. 5 shaft, rock cars are landed about 30 ft. above the level of the ground and are discharged by a hand-operated rotary car dump. The car runs into a spring-operated mechanism which clamps it against the bumpers or horns that are permanently attached to the ends of the rails. After a car is dumped and restored to the upright position, a trip releases the spring clamp, and the car is backed out to make room for the next one.

The rock which is brought up out of the shaft at this place is dumped into railroad dump cars and taken to the slag dump. The rotary dump just described is not



FEW IF ANY SHAFTS HAVE STEEL GUIDES BUT STEEL GIVES GOOD RESULTS AT ROSEDALE.

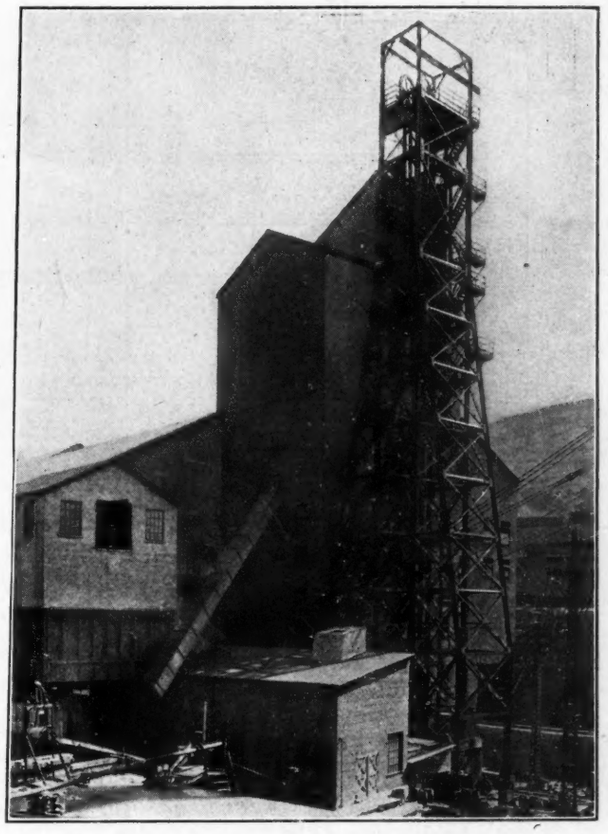
Many have declared that safety catches will not hold heavy cages effectively unless wood guides are provided into which the sharp edges of the clutch would effectively enter. Experiment has shown that catches can be installed that will grasp the 100-lb. railroad-iron guides at this shaft with such force that the cage detached from the rope would stop in 1½ to 2 in. without fail. The rails once placed will give unimpaired service as long as the shaft remains in use. The use of steel buntons also is shown.

much used as little rock is brought out of the mine, most of it being stored inside.

The mining methods at this colliery are much the same as those in general use, room-and-pillar methods being employed. Owing to the exceptionally good top, falls of roof give no trouble.

Drainage likewise presents no special problems. A pump house and sump are located near the bottom of No. 5 shaft. This sump will hold 360,000 gal. of water. Under present operating conditions a three-stage centrifugal pump of horizontal type with direct-connected motor is used, the pump being operated only about 2½ hours in every ten to eleven. Another pump is being installed to be used in case of necessity.

Steel sprags of 1¼ and 1½-in. pipe are used almost exclusively. These are of two types, one plain with a ring on the end, the other with a hilt. Where the hilt is used it is shrunk and welded on the pipe.



HEADFRAME AT NO. 6 SHAFT, ROSEDALE MINES.

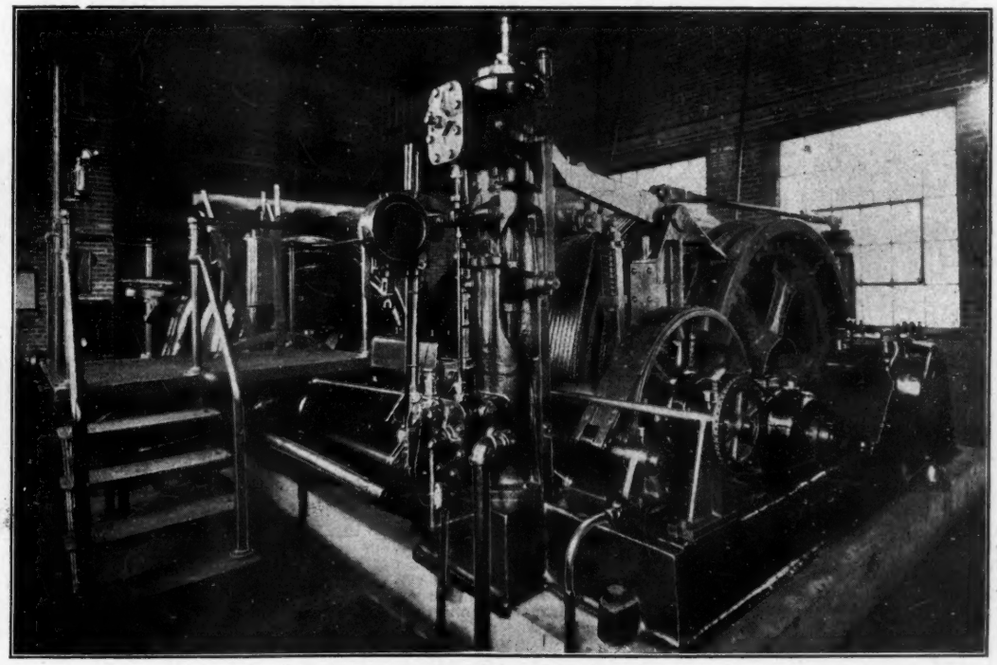
This tower is 175 ft. high and is located with the coal washery, a short distance from one end of the coke ovens. The shaft is 232 ft. deep. The coal is dumped into a large storage bin at the top of the building.

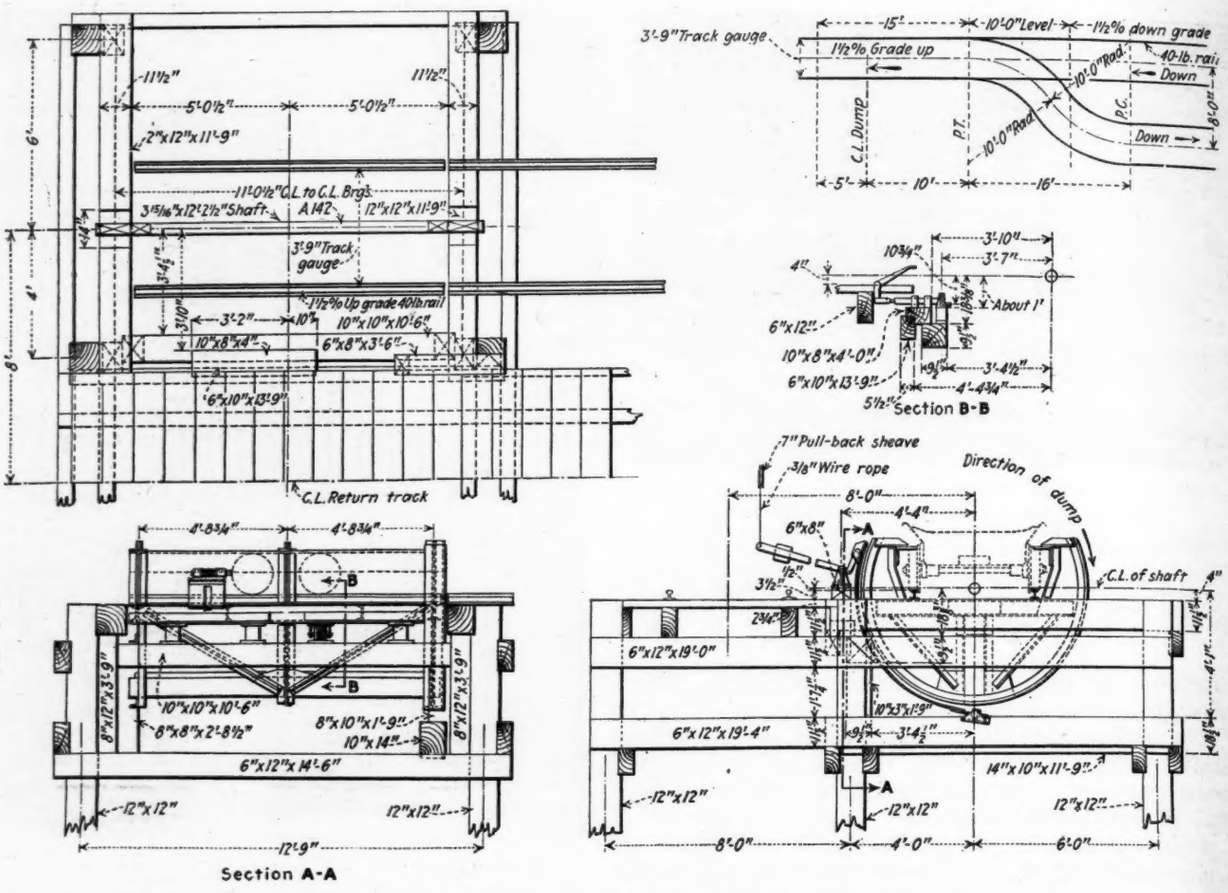
Steel sprags are a safety provision as they eliminate many thumb injuries. They are especially suitable for use in rooms but are not so necessary where the cars are spragged by men who are experienced in the work, for, owing to their experience and skill, regular spraggers seldom have accidents of this kind.

The motor barn is a large brick structure built in the

Hoisting Engine

This is the main hoist by which all the coal produced in the Rosedale and Rolling Mill mine is lifted. Coal from the Cement bed at Rosedale is dropped down a coal well to a point at which the skips are filled. That from the Rolling Mill mine is dropped down a well at Elk Run shaft to the Miller seam and is hauled to the Rosedale shaft, where it, with the Miller seam coal removed at Rosedale, is also dumped down to the skip level.

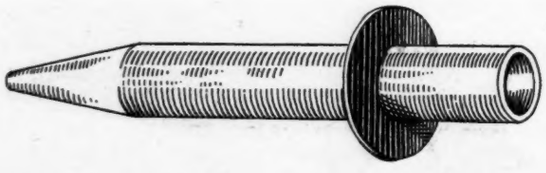




ROTARY CAR DUMPER USED AT SURFACE FOR DISCHARGE OF SLATE INTO RAILROAD CARS.

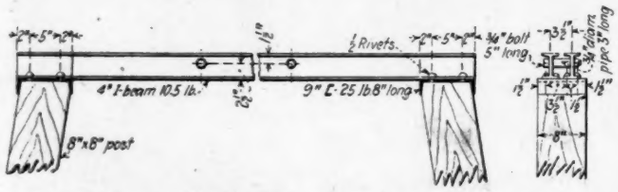
Only coal is brought up by the main hoist and it is raised in skips. The rock is brought up in the car by the cage hoist in the manway-supply shaft and is elevated to a point only 30 ft. above the level of the ground. The car is run into a rotary dump which is actuated by springs. Bumpers, or horns, attached to the dump hold the car when it reaches the right place on the rails in the tippler, which then revolves enough of a revolution to discharge the rock. The dump is on an upgrade of 1¾ per cent so that the car when released will run out of the dump toward the shaft switch by gravity. A 1¾ per cent grade leads down from the shaft landing to the switch so that the loaded car reaches the dump at some speed, running thereto by gravity. Much of the rock is stored in the mine, and the dump therefore is not kept very busy. What is dumped is taken to the slag pile.

Miller seam, near No. 5 shaft. It is sufficiently large to house the 35-ton electric locomotives. It contains a drop pit and a chain fall and a trolley capable of lifting any motor up to and including the 35-ton size.



STEEL SPRAG WITH GUARD FOR FINGERS.

Inexperienced spraggers using sprags without a guard are likely to catch their fingers. These sprags are used mostly in the rooms where men inexperienced at spragging are at work. The hilt is shrunk on and welded to the pipe.

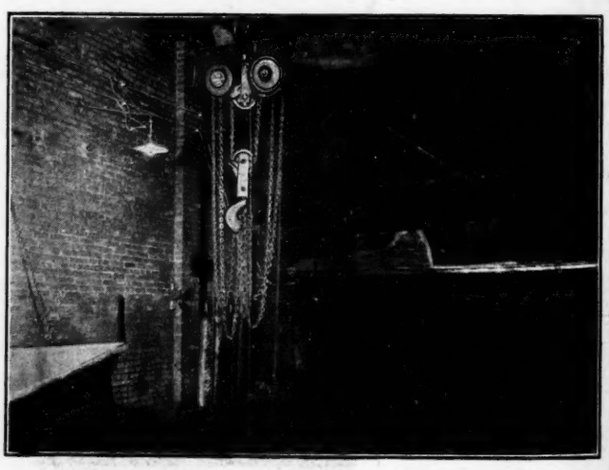


CROSS BARS OF DOUBLE I-BEAMS ON WOOD POSTS

Rarely does the roof need timbering in the Rosedale mines. When heavy timbers are needed 4-in. 10-lb. I-beams are used. As these are deficient in width they are put in pairs and connected by ¾-in. bolts with pipe separators. The beams rest on short channels which fit over the tops of wood posts. As the posts can be sawed to any needed length, they can be readily fitted by the use of nothing more elaborate than a saw which the timberman can readily carry with him.

A separate room adjoining the barn is used as a supply room for motor parts. It is provided with steel bins, racks and other conveniences in accordance with the best modern practice.

Sand for locomotives is dried at the surface with the aid of steam. It is then passed down boreholes that have been drilled through the overburden to both seams.



BRICK MOTOR BARN BUILT IN MILLER SEAM.

This garage for mine locomotives has been erected near No. 5 shaft. It is large enough to house the big 35-ton mining locomotives and has a drop pit, a chain fall and a trolley capable of handling the motors of this unusual equipment.

The skids which on heavy grades are used under the cars are in many ways original, though the basic idea has been used before. The illustrations clearly show the way in which they are made and applied. They have been used with the greatest success, and they are especially needed where trips of the length of those in this mine have to be handled.

Where timbering is necessary steel mine timbers with wooden legs are used. These are made up of a pair of 4-in. 10-lb. I-beams riveted at the ends to short pieces of channel which serve as caps for 8x8 in. posts. The I-beams are separated by spacers and bolted together. These are known as double cross bars. The diagram shows further details. By this arrangement most of of the advantages of all-steel timbering are obtained. Wood posts can be fitted more readily than steel legs as they can be trimmed to the required length by a saw.

The cars at the mine are of unusual construction. They were designed by the general superintendent of coal-mining operations of the Cambria Steel Co., who has patented the form of construction used. The main claim for these cars is that they are unusually strong particularly in a longitudinal direction which is that in

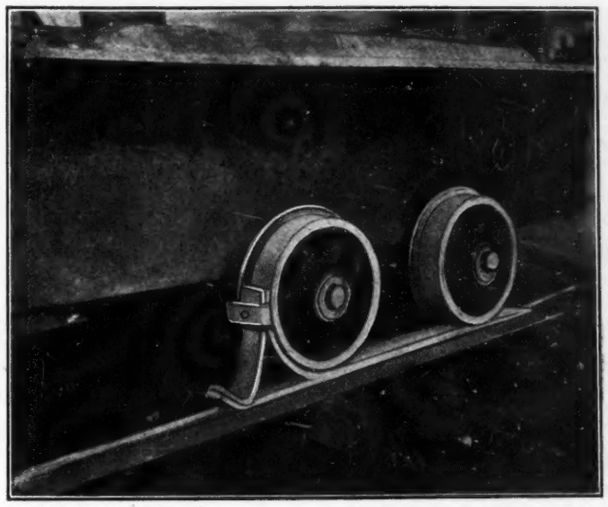
SKIDS FOR LOWERING CARS DOWN HEAVY GRADES

Johnstown is located near enough to the line of Appalachian uplift to have heavily rolling measures. Furthermore the trips hauled are long. In consequence these skids are quite necessary. They are found to give excellent service.

which the greatest shocks are usually sustained. In case of accident the wood shock absorber and the method of its reinforcement make it practically impossible to telescope the cars.

An inverted channel section is pressed in the bottoms of these wagons so that it projects upward into the car. On the underside and in the channel section is placed the wooden shock absorber which is a piece of plank 3x9 in. and 9 ft. long. When bolted in place it is flush with the bottom of the car. The ends of this plank are capped by bumpers. The plank cushions any shock the car may receive, and the channel section by its stiffness provides the wood filler with the required strength. Tests have been made which show the greatly increased strength obtained by this method of construction. Two types of cars were tested with identically similar impacts. One of these, an ordinary car, was practically destroyed whereas the other, one of the type just mentioned, received practically no injury.

From the foregoing descriptions it will be seen that these mines are excellent examples of modern and advanced coal-mining practice. Every effort has been made to increase production and at the same time add to the safety and economy of the methods used. Even laymen who visit these mines are conscious of the fact that they are well equipped.

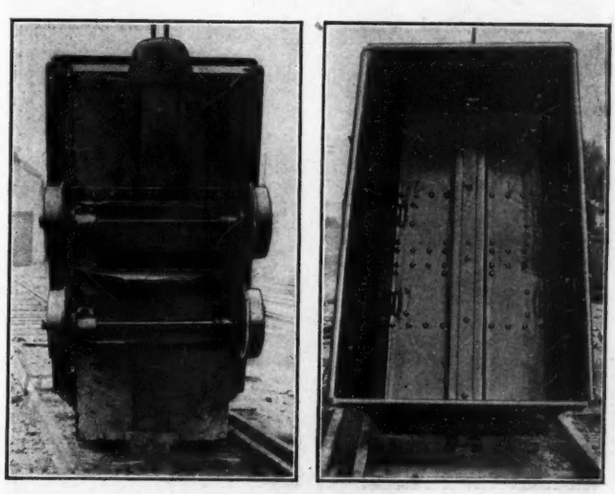


SKIDS IN PLACE UNDER WHEELS OF MINE CAR.

Skids replace rolling by sliding friction, and yet the sliding does not flatten the wheels, the wear being taken by the skid, the sliding surface being long enough not to make this excessive.

The Cambria Steel Co. operates its mines solely to take care of its own needs and most of the coal produced is converted into coke. The coal from the mine described does not, of itself, coke readily, and it is necessary to mix it with coal obtained from other of the company's mines. This will be taken up in greater detail in a future article dealing with the Rosedale coal washery and the byproduct coke oven equipment, which represent the last word in equipment of this kind.

In conclusion it may be said that one is at no time more struck by the tremendous strides that have been made in coal-mining methods than when one compares the present plant at this mine with those that preceded it. From the days when hand drills, mule-drawn equipment and manual labor sufficed to the present time with its improved methods and tremendous production is indeed a far cry.



LONG TRIPS DEMAND THE MOST RUGGED OF CARS.

Two views of a specially designed steel mine car with riveted body. The bottom along the axis of the car is pressed into a channel shape to accommodate a shock absorber made of plank, forming a combination which, while stiff, has enough "give" to satisfy the most severe service requirements.

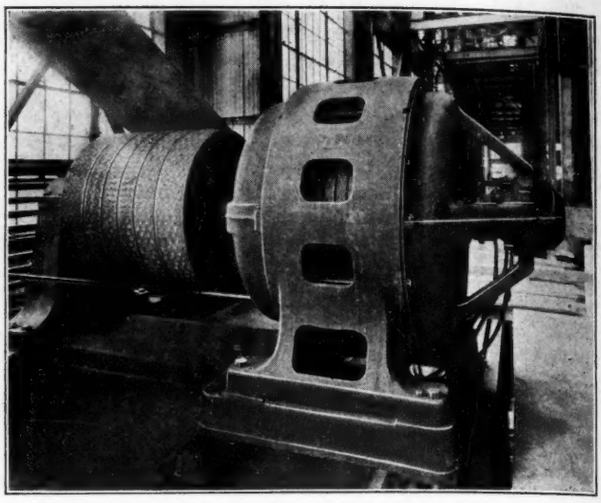
Pulleys Having Cork Inserts Set in Face Are Used to Keep Belt from Slipping

A SLIPPING belt on a heavy drive makes trouble, which may be of several different kinds. In the first place the driven shaft or machine is not operated at its calculated speed; second, the belt is subjected to heavy wear and, third, the squeak or squawl developed is likely to be highly objectionable. Various palliatives may be applied. Many belt dressings have been placed on the market that are said to work wonders. Particularly if the drive be at high speed, drilling holes in the face of the smaller pulley (drilling out from 10 to 25 per cent of the area is usually sufficient) may accomplish the desired result and stop slippage.

Still another means of increasing the adhesion of a belt to a pulley is to cover the pulley face with a strip of belt, which should be neatly lapped and riveted or cemented in place. If the emergency is dire and requires immediate correction, even though this be only temporary, sifting powdered rosin between the belt and the wheel usually will stop slipping at least for a time.

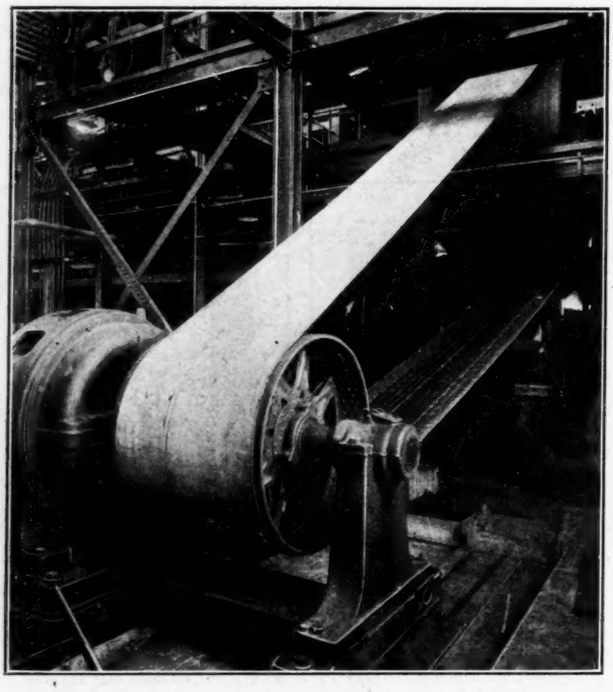
All of these expedients, however, are open to many objections. The time to prevent a belt from slipping is when the machinery is first installed—before slippage has had a chance to start. On straight belt drives—that is, those where the belt is not crossed—other things being equal, slipping will take place at the smaller pulley, as this has the lesser arc of contact. The logical method of preventing slipping is to increase the adhesion of the belt to this pulley to such an extent that it will at least equal its adhesion to the larger pulley.

The accompanying illustrations show a 300-hp. belt drive installed in the Coaldale breaker of the Lehigh Coal & Navigation Co., where an attempt has been made to obtain the results just outlined. Here a 44½ in. diameter by 38 in. face split steel pulley provided with cork inserts is mounted on the shaft of the driving motor. This machine has a rated speed of 365 r.p.m. and drives a 12-ft. line-shaft pulley, also of 38 in. face. The motor shaft, as may be seen, is extended to an outboard pedestal bearing mounted on the same bedplate as the motor and moving on guide rails with it. This makes an extremely simple and "husky" drive and one that should give both extreme positiveness and a minimum of trouble. At first sight it would appear that the cork inserts would not be durable but it is said that they wear indefinitely and are practically unaffected by dust, oil or water.



ANOTHER VIEW OF THE MOTOR AND PULLEY

This is taken so as to show the exposed face between the upper and lower halves of the belt. The cork inserts are staggered so that every element in the belt width will have contact with the cork and do its part in transmitting power. Here also may be seen the guide rails on which the motor and pulley baseplate is mounted and along which it is moved.

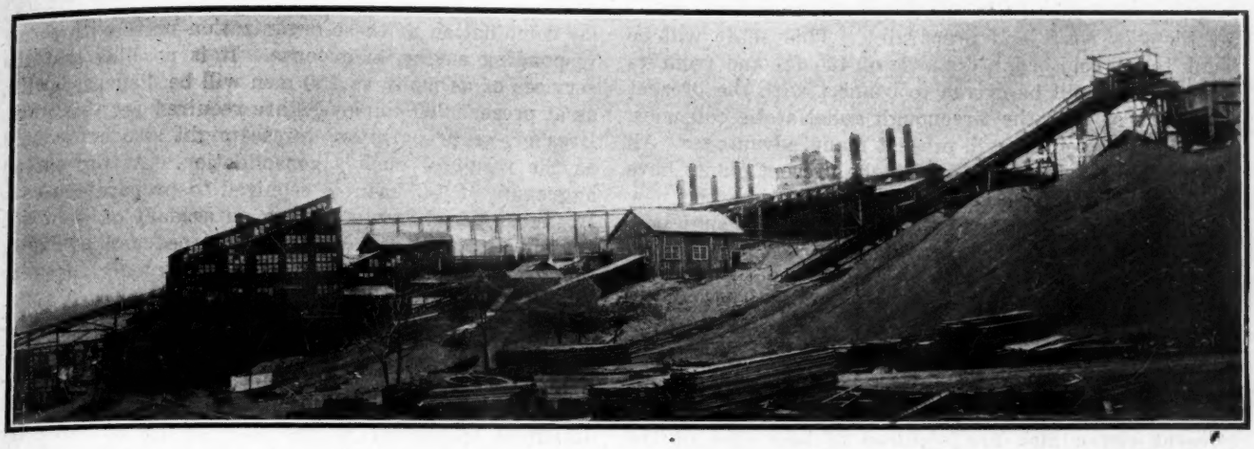


CORK-INSERT PULLEY MOUNTED ON 300-HP. MOTOR

Careful observation will show the indentations on the inside of the driving pulley, the way in which the pulley is constructed and the manner in which both pulley and motor are placed on one baseplate and moved backward or forward as the belt requires.

The breaker in which this drive is installed, it may be said in passing, is one of the largest and most modern in the entire anthracite region. The former structure occupying this site burned, and to prevent a recurrence of such a loss the new building has been made as nearly fireproof as possible. Approximately 2,500 tons of structural steel has been used in its construction. It is seven stories high and has about 50,000 sq.ft. of concrete floor and 200 ribbed wire-glass windows in steel frames each 11x12 ft. in dimensions. Pipe coils spreading 30,000 sq.ft. of radiating surface will heat the building in cold weather. Ample toilets, lavatories and drinking fountains also have been installed. These are somewhat of an innovation in breaker construction. All jigs and other machinery are driven electrically, and a central control station has been provided.

A BUSINESS OPPORTUNITY of unusual promise has opened to the byproduct coke industry. Substitutes for anthracite coal must be found. Were production to start immediately, there would not be enough anthracite coal available this winter to go around. Large stocks of byproduct coke are available, thus offering that industry an opportunity to prove that coke is as satisfactory a fuel as is anthracite and can be had at less price. It remains to be seen whether the industry can resist the temptation to exact the highest possible price and sell its product at a small margin of profit with the idea of popularizing the fuel. Under present conditions the industry can get fancy prices for its product. The hope is expressed by federal officials that the industry will show enough collective sense to sell coke at the lowest possible price and will send out a large force of men to show how coke may be burned to the greatest advantage.



By Uniting Two Collieries and Building a New Breaker Operating Cost and Degradation Will Be Reduced

On an Output of 430,000 Tons per Annum Madeira-Hill Interests Expect to Reduce Their Operating Force by Between 150 and 255 Men Exclusive of Eight Pumpers

By DEVER C. ASHMEAD*
Kingston, Pa.

IN THE early days of anthracite mining a breaker was built at almost every mine opening. Originally these structures were of small size and when their capacity reached 200 tons per day they were considered large installations. It was found, however, that much labor was required to operate these many small plants and when this became expensive and difficult to procure consideration was given to the consolidation of the many small breakers into a few of much larger capacity.

By building larger and more efficient breakers it was possible not only to make one new breaker take the place of two or more, simultaneously reducing the number of men employed in actual preparation, but also to cut down the outside force. A specific example will illustrate this general principle.

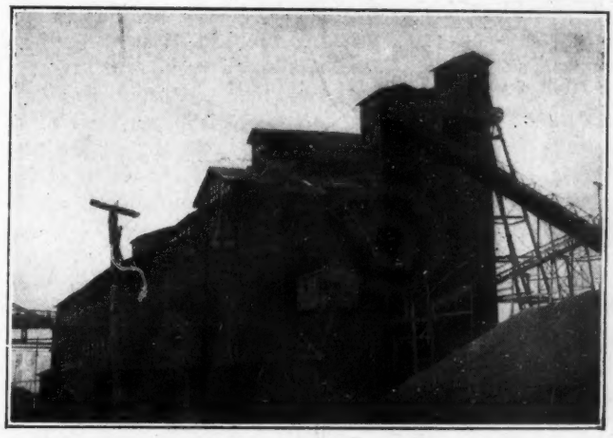
Two anthracite companies, known as the Greenough Red Ash Coal Co. and the Colonial Collieries Co., are each subsidiary to the Madeira-Hill Co. The breakers of these two firms are now about 5,600 ft. apart. The two properties under operation were separated by a tract of land 1,400 ft. wide, controlled by another company. The Madeira interests accordingly obtained possession of this piece of ground, and the two properties were thus consolidated.

DOUBLE PLANTS AND FORCES NECESSARY

The annual output from one of these collieries totals about 250,000 tons, and that of the other reaches approximately 180,000 tons. Under present arrangements two breakers are required to prepare this coal. Consequently two distinct forces of breaker and outside employees as well as two breaker and two outside foremen are necessary. In addition to this, six pumping stations are required underground to handle the water produced each day.

All told, about 400 men are employed in and about these surface plants, 145 of whom are used in actual coal preparation. Furthermore, the breaker at the Greenough colliery is somewhat behind the best modern practice, and although the resulting product is of good quality, breakage and waste is excessive. At Natalie the breaker is more modern, but it is located well away from the center of the property as now constituted.

After careful investigation of existing conditions and the savings made possible through a consolidation of preparation operations, a point approximately midway between the present breakers was selected as the site



BREAKER OF COLONIAL COLLIERIES CO., NATALIE, PA.

The improvements being effected joining this operation with that at Marion Heights will make it possible to dispense with this breaker as soon as the new one is finished.

NOTE—The frontispiece shows the surface plant of the Greenough Red Ash Coal Co. colliery at Marion Heights, Pa., which will be abandoned as soon as the new plant is completed that will combine the workings of this mine with those of Natalie.

*Anthracite Editor, *Coal Age*.

of the new shaft and preparator. This shaft will be sunk to the coal bed, a distance of 450 ft., and from its foot tunnels will be driven to connect with the present workings of both the Greenough and Natalie collieries.

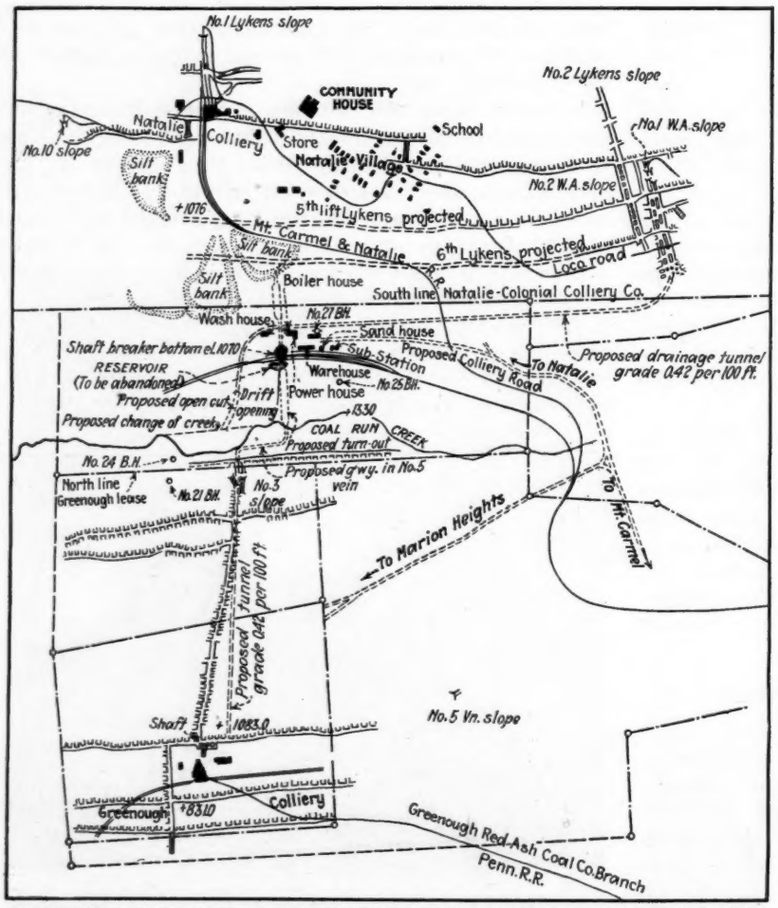
This arrangement will present many advantages. All the surface haulage with which the present plants have to contend will be eliminated. By the time the new plant is completed the two or three small slopes now tributary to these breakers will be worked out and the roads leading to them will no longer be needed. Difficulties incident to transportation on the surface during the winter will be overcome, and the haulage, being entirely underground, will be conducted under more nearly uniform conditions. The six pumping stations now in operation will be consolidated into one. At present eleven men are required to take care of the pumps whereas under the new arrangemnt only three will be necessary.

In order to make the requisite underground connections it will be necessary to drive approximately 6,300 ft. of tunnel exclusive of the sixth lift in the Lykens bed. At present three slopes and one shaft are employed, requiring the services of eight hoisting engineers. Under the new scheme only one shaft and one slope will be used, for the operation of which only four hoistmen will be required.

At present the existence of two collieries signifies that two complete outside and two office forces must be maintained. Combining these plants will permit a similar combination of these organization units with a corresponding saving in expense. It is possible that the services of as many as 150 men will be dispensed with, as at present 260 employees are required for this work. Breaker, or preparation, forces might also be reduced as the result of such a consolidation. At present an aggregate of 145 men is required to prepare the coal. In the proposed new structure on account of improved equipment and processes now developed and available, forty to fifty men will be enabled to prepare the mine product effectively.

From the above estimates it will be seen that theoretically at least the services of 267 men may be dispensed with. It is hardly to be anticipated, however, that this saving will be realized fully. If, however, the consolidation of operations results in a saving of necessary labor amounting to the services of only 150 men and that their average wage is only $3.50 per day, the total saving in wages would be $525 daily. Assuming that these men normally would work for 265 days per year, an annual saving would be made in labor alone totaling approximately $140,000.

In addition to this labor saving, the cost of preparation could be lowered, for in a new breaker of this kind better design and improved methods of treatment will reduce the degradation of the coal. The figures presented above are not actual as will be promptly recognized by all those familiar with the conditions existing throughout the anthracite region. Thus the rate of $3.50 per day is too low but is here presented to show the obvious possibilities involved.



COMBINED PLAN NATALIE AND GREENOUGH COLLIERY SHOWING NEW DEVELOPMENTS AS PLANNED

A shaft will be sunk and a breaker with all the structures essential for the operation of an anthracite mine will be erected. Gangways will be extended and two large turnouts provided. A long tunnel will take the water from a low point in the Natalie mine to the surface along the course of Coal Run Creek.

The new headframe and breaker will be of steel and as nearly fireproof as they can be made. The rest of the new buildings about the plant will be of hy-rib steel lath covered with stucco. This building group will consist of a combined machine, blacksmith and carpenter shop, a supply and office building, a house over the mine hoist, a motor-generator set and a compresser, a substation, a boiler plant (used for heating only), a locomotive barn, an oil house, a magazine, a local-sales scale house, and a modern timber yard. Of course a thoroughly modern wash house also will be provided. This building will be of sufficient size to accommodate 350 to 400 men.

Preparation within the breaker will be of the "wet type, and all sizes of two distinct kinds of coal will be prepared. That is, the Red and White Ash coals, both of which will be produced at this operation, will be prepared separately. All machines will have individual motor drives, but these will be controlled from a central switchboard.

The advantages to be derived from the proposed consolidation are manifold. They may be stated as follows: (1) Several miles of surface transportation now necessary will be entirely obviated; consequently no delays can be caused by inclement weather. (2) One breaker employing forty or fifty men will replace two requiring 145 men. (3) One outside

force consisting of only about 110 men will be employed in place of two organizations numbering 260 men. (4) Hoisting will be concentrated at one point. (5) One pumping plant will do the work formerly performed by six, with a corresponding or nearly corresponding reduction in the pumping cost. (6) Degradation will be lessened and less power will be required to treat a given tonnage.

Inasmuch as the plans for the proposed alterations have not been finally developed in detail, they cannot be even outlined here. Thus it has not yet been decided definitely whether cages or skips will be used in hoisting. If the latter are chosen the most advanced bituminous practice will have found its way into the production of anthracite.

How to Find Economical Size for Airshaft

BY M. H. HALL*
Coalwood, W. Va.

WHEN determining the size of an airshaft to serve a proposed mine it was customary until recently to make it conform exactly with the two hoisting compartments of the main shaft. These latter are usually designed to accommodate the mine car to be hoisted or are made similar to other shafts operating satisfactorily under like conditions in the same region.

Such airshafts are not in accordance with good engineering. In many cases openings so proportioned have to be enlarged after a few years in order to decrease the pressure necessary on the air current, for a sufficient volume cannot be forced through the mine without an unreasonable expenditure for power.

The factors governing the economic size of an airshaft are as follows: The estimated life of the mine, the cost of sinking and lining, unit power cost, volume of air required and the interest rate on money invested.

The following table has been computed, assuming a depth of shaft of 100 ft., a coefficient of air friction $k = 10^{-8}$ and the following assumptions concerning costs, life of property, etc.: The estimated life of the mine is taken as 50 years, the cost of excavation at $15 per cubic yard, the cost of concrete lining as $30 per cubic yard in place, the volume of air required as ranging from 100,000 to 600,000 cu.ft. per minute, the unit power cost as 2c. per kilowatt-hour, and the interest rate on the investment as 6 per cent.

In the left-hand column the sizes of the assumed square shafts are shown, in the second column is placed the sinking or first cost. This includes the excavation and the concrete lining, both at the rates assumed. The third column contains the annual interest charge at 6 per cent on the first cost of the shaft, plus the sum that must be placed yearly at 6 per cent compound interest in order to amount to the first cost of the shaft at the expiration of 50 years or the life of the mine. This sinking fund or extinguishment charge is absolutely necessary in order that the original capital be not impaired.

The next and succeeding columns showing the assumed volumes of air to be circulated per minute are double. The left-hand half shows the power cost per year. This is the cost of maintaining the ventilating current continuously for one year at the assumed rate of 2c. per kilowatt-hour, based on an over-all mechanical efficiency for combined fan and drive of 66⅔ per cent. This is probably somewhat higher than is commonly attained even in first-class installations.

The total annual cost will obviously be the sum made up of the figure shown in column 3 plus the power cost for a given volume. This sum is tabulated in the second or right-hand half of the double column under the subhead "Total Cost, Year." Inspection of the total annual costs set forth in this column shows that a small shaft entails a high annual expense. This gradually decreases as the cross-section of the shaft increases until a size of maximum economy is reached, the increased fixed charge of which equals the decreased power cost.

In each total yearly cost column a horizontal line is drawn below the minimum cost for each assumed volume, making a broken or stepped line across the table. Following any horizontal portion or step of this line back to the first column the most advantageous size of square shaft to pass any assumed volume of air will be found.

The process involved may well be illustrated with an example. Suppose that it is desired to ascertain the economical dimensions for a shaft to pass 500,000 cu.ft. of air per minute. In the column subheaded "Total Cost, Year" under the volume heading of "500,000 cu.ft. per minute" the lowest cost is found to be $3,225 for a shaft 100 ft. deep. Following the line below this figure to the first or left-hand column the cross-section of the shaft is shown to be 20x20 ft.

Again suppose a comparison is desired between the relative economies of shafts of correct and incorrect cross-sectional areas. Assume that the proposed shaft will be 600 ft. deep and that 500,000 cu.ft. of air will pass as before. From the table, under the volume heading of "500,000 cu.ft. per minute" and the subheading "Total Cost, Year" a minimum of $3,225 for each 100 ft. of shaft depth is found. As the shaft is to be 600 ft. deep the total expense obviously will be six times this amount or $19,350. Now suppose that an attempt is made to ventilate the mine with a shaft that is 10x10 ft. in section, involving, of course, a greatly decreased

*Chief engineer, Carter Coal Co., Inc.

TABLE FOR DETERMINATION OF ECONOMIC SIZE FOR AIRSHAFTS

Size of Shaft, Ft.	Sinking or First Cost	6% Int. and 50-Yr. 6% Sinking Fund	100,000 Cu.Ft. per Min.		200,000 Cu.Ft. per Min.		300,000 Cu.Ft. per Min.		400,000 Cu.Ft. per Min.		500,000 Cu.Ft. per Min.		600,000 Cu.Ft. per Min.	
			Power Cost, Year	Total Cost, Year	Power Cost, Year	Total Cost, Year	Power Cost, Year	Total Cost, Year	Power Cost, Year	Total Cost, Year	Power Cost, Year	Total Cost, Year	Power Cost, Year	Total Cost, Year
6 x 6	$6,600	$423	$3,050.00	$3,473	$24,400	$24,823	$82,300	$82,723	$196,000	$196,423	$382,000	$382,423	$658,000	$658,423
8 x 8	9,400	596	722.00	1,318	5,760	6,356	19,400	19,996	46,200	46,796	90,200	90,796	155,000	155,596
10 x 10	12,860	816	237.00	1,053	1,895	2,711	6,400	7,216	15,200	16,016	29,600	30,416	51,200	52,016
12 x 12	16,570	1,051	95.00	1,146	762	1,813	2,570	3,621	6,100	7,151	11,900	12,951	20,600	21,651
14 x 14	20,870	1,326	44.00	1,370	352	1,678	1,188	2,514	2,820	4,146	5,500	6,826	9,500	10,826
16 x 16	25,550	1,620	23.00	1,643	181	1,801	610	2,230	1,450	3,070	2,820	4,440	4,880	6,500
18 x 18	30,650	1,946	12.50	1,958	100	2,046	337	2,283	800	2,746	1,560	3,506	2,700	4,646
20 x 20	36,220	2,300	7.40	2,307	59	2,359	200	2,500	474	2,774	925	3,225	1,600	3,900
22 x 22	42,220	2,680	4.60	2,685	37	2,717	124	2,804	294	2,974	575	3,255	992	3,672
24 x 24	48,700	3,080	2.98	3,083	24	3,104	80	3,160	191	3,271	372	3,452	643	3,723
26 x 26	55,470	3,520	1.98	3,522	16	3,536	53	3,573	127	3,647	248	3,768	428	3,948
28 x 28	62,860	3,980	1.37	3,981	11	3,991	37	4,017	88	4,068	171	4,151	294	4,274
30 x 30	70,700	4,480	.97	4,481	8	4,488	26	4,506	62	4,542	121	4,601	210	4,690

first cost. Under "500,000 cu.ft. per minute" and opposite a 10x10 ft. shaft a total yearly cost of $30,416 is found for each 100 ft. of depth, or a total cost for the shaft in question of six times this amount or $182,496. Subtracting the total yearly cost for the 20x20 ft. shaft from that of the 10x10 ft. shaft we have $182,496 — $19,350 = $163,146. This sum represents the annual loss chargeable to lack of knowledge or to failure to apply the principles of engineering economics.

This sum if placed at interest at 6 per cent and compounded annually will amount at the expiration of 50 years to approximately $47,367,800. On the other hand the saving effected by sinking a 10x10-ft. shaft in preference to one 20x20 ft. in dimensions, or $140,160 if also placed at interest at 6 per cent and compounded annually will amount to approximately $2,581,800 at the end of the 50-year period.

Evidently the ultimate economy obtainable from the larger shaft will amount to $47,367,800 — $2,581,800 = $44,786,000 at the expiration of 50 years or the estimated life of the mine.

All figures here set forth are the results of slide-rule calculations. They probably are sufficiently accurate. however, for all practical purposes.

Speed-Reducing Gear Lowers Headroom Needed for Loading-Boom Hoist

NECESSITY, in a low-roofed machine shop exercising her well-known maternal instinct toward invention, has produced a new type of electric hoist which conserves room, is rapid in operation and readily spots a loading boom or other load. The machine is expected to reduce the degradation of coal during loading for those who supplant hand power with mechanical for the raising and lowering of loading booms. For two years this machine has been in every-day use, several sizes having been employed for various purposes in shops and foundries. Some months past three units were installed by the Sincerity Coal Co. at Marion, Ill. This hoist, known as the McCollum, is now being formally introduced to the coal industry by Roberts & Schaefer, engineers and contractors, of Chicago.

The Sincerity Coal Co. has three double-chain hoists of this type, attached to an equal number of shaking loading booms. The capacity of each of these hoists is 2 tons but machines are made in 2-, 3-, and 5-ton sizes. They are applicable to either the shaking or the apron type of loading boom; the double-chain hoist (Fig. 1) is especially adapted to the shaking type, and the single-chain machine (Fig. 2) to the bottom of apron type.

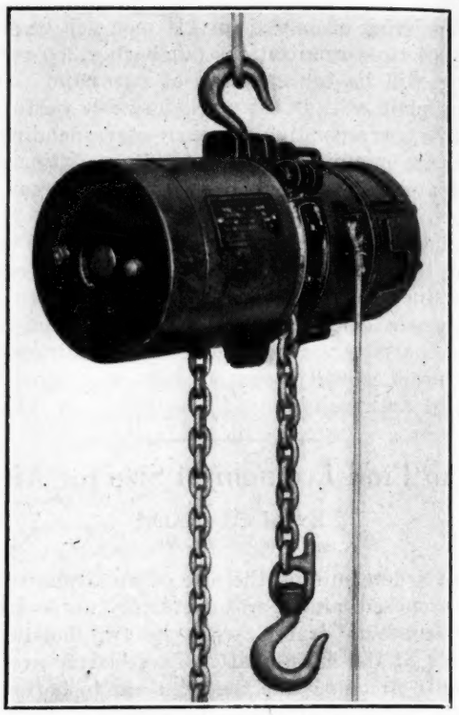


FIG. 2. SINGLE-CHAIN BOOM HOIST

This type of hoist may be hung from any convenient point. The fallacy of relying on hand raising or lowering of the boom has long been recognized.

The new hoist is simple, compact and rugged. All these desirable qualities are made possible by the use of a special annular gear reduction interposed between the motor and the chain sheave. By the use of this gearing a high ratio of speed transformation is obtained efficiently and in a small space. This makes it possible to employ a high-speed motor, one of 1,800 r.p.m. being generally used. Such a motor is lighter, less cumbersome and cheaper than one delivering the same power at a slower speed.

This speed-reducing mechanism can be driven only from the motor end. As a result the torque produced by a suspended load has no tendency to cause the mechanism to rotate and allow the load to descend. This feature makes it possible to do away with the strong electrical and mechanical brakes heretofore essential in hoisting apparatus. A small friction brake is employed to check the momentum of the motor rotor when current is shut off. This permits accurate placing of the load.

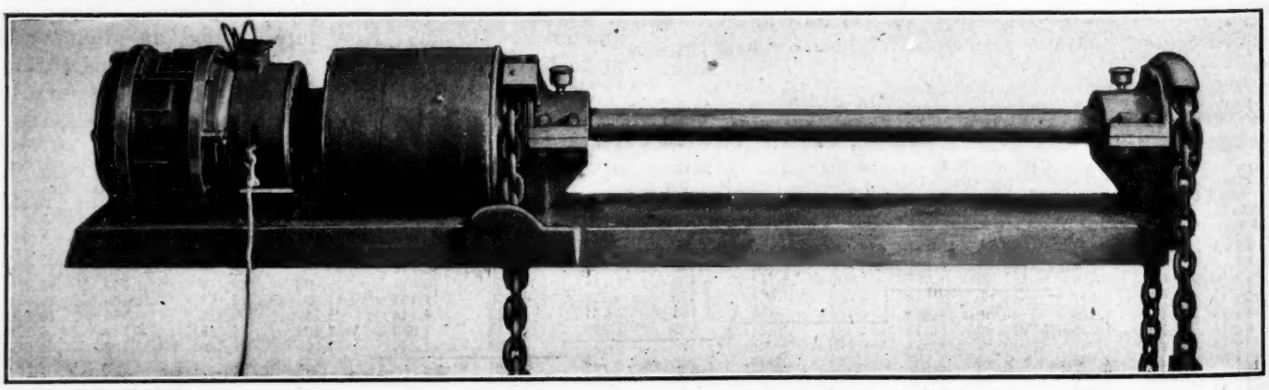


FIG. 1. DOUBLE-CHAIN BOOM HOIST OF SIMPLE DESIGN

One chain is attached to each side of the boom or chute and passes over a suitable sheave on the main shaft. Thus as this shaft is revolved both sides of the car-loading device are raised or lowered evenly. Motor control is obtained by means of a rope hanging within easy reach of the car trimmer.

Problems of Operating Men

Edited by James T. Beard

Safety-First Instructions Much Needed In Mining

Disregard for Safety-First Rules Causes Accidents—Miners Not Wholly to Blame—Safety Instructions Needed to Reduce Accident List

READING the interesting letters that have appeared in *Coal Age*, discussing the accident that occurred when a miner was burned by going over or around a fall of roof, in his working place, in attempting to see if the fireboss had marked the face of the coal, I have been impressed with the thought that there must have been a lack of suitable safety instructions in that mine, either that or the miner wholly disregarded the instructions given him.

In the first place, let me say that I do not approve of a fireboss marking only the face of the coal to indicate that he has examined the place and found it safe for work. That is not to say, however, that a fireboss should not mark the coal face; but I contend he should also leave a mark at the last breakthrough, unless it is understood that the miner, not finding any mark back from the face, can assume that the place is safe for him to proceed to his work.

Lack of Safety-First Teaching Responsible for Accidents

In my opinion, the lack of safety-first teaching in that mine, had more bearing on this accident than anything else. I feel that if men are properly taught, along the right lines, they will not attempt to go over a fall to hunt a supposed mark made by the fireboss.

Finding a mark on the face of the coal, beyond the fall, would only show that, either the fireboss had made a very hasty and careless examination of the place, or that a condition had developed since and the fall had taken place after the fireboss had gone.

Taking all into consideration, I cannot say, as many have already claimed, that this miner was wholly to blame for the injury he received when he went beyond the fall. My thought is that some blame attaches to all concerned. It seems to me that there could not have been sufficient interest taken by those in charge and whose duty it was to give the men the necessary safety-first instructions.

After an accident has happened, it is always easy to tell how it might have been avoided. I wonder how many mine officials, who have read these letters, have similar conditions now existing in their own mines and, yet, give the matter little further thought, passing this warning by as of little importance.

That, to my mind, is our worst trouble. We read an account of what happened in the other fellow's mine; but it does not occur to us that the same thing is liable to happen in our own place. If the same thing should occur with us, however, we would at once get busy and do what was necessary to avoid its recurrence.

There are roof conditions that make it impossible for any man to examine and say with assurance that it will not fall within two or three hours, though there may be no signs of weakness apparent at the time the examination is made.

For this reason, I do not feel that a fireboss can be held responsible for such an occurrence as the one mentioned. However, to make myself clear on the situation, I believe that should such a thing happen—it ought to make a fireboss more cautious and thorough in his future examination of places. In other words, the lesson should not be without its moral effect.

My observation proves to me that many accidents in mines result from the lack of interest on the part of both the men in charge and the workers; and this applies to other industries as well as to coal mining. The men in charge too often pose as leaders while their acts belie their claims to leadership.

Certified Men Mistaken Who Think They Know It All

Speaking of certification, I cannot but think that many of our certified men feel as if they knew it all, and have done and are doing all that is required of them as officials. Here, let me say, is where they are all wrong. When a man receives his certificate he has only just started; stopping there, he will certainly prove a failure.

When a man is placed in charge of a mine is the time he should start to study and train others in regard to the meaning of safety-first. He should organize safety-first meetings, with the aim of giving instruction along lines that will make work safer for the men and more effective.

Any mine superintendent or foreman who regards such efforts as a waste of time is unworthy of his calling and unfit for the position he holds. A good rule for any man to follow is to try to teach other men what he has been taught and what has helped him. It is no waste of time for a man to be a booster of safety-first. It pays.

It has always been a surprise to me that mine officials, whose companies are spending large sums of money for safety, rarely talk safety to their men, or give them needed instruction along that line. Let us hope that a deeper interest will be taken by mine officials everywhere in starting and maintaining safety-first and institute meetings, for the benefit of their men.

E. P. McOlvin,
Coal Mine Superintendent,
Alpha Portland Cement Co.
Wolf Summit, W. Va.

Teach Rudiments of Mining in the Common Schools

Decrease of American miners—Cause found in lack of early education—Effect shown in accident list.

ONE of the outstanding features in the mining of coal that is apparent to even the casual observer is the rapid decrease of American miners employed in our mines. Other writers have drawn attention to this matter and numerous remedies have been suggested, such as courses of training for miners and other incentives to the study of mining.

It is generally conceded that the employment of so large a class of foreign labor, ignorant of the principles of mining and unable to speak the English language, is responsible for the high accident list. Closer supervision of the work has been advocated as a means of eliminating many preventable accidents. It appears to me, however, that we have not as yet gotten at the root of the matter.

In seeking to ascertain the cause why young men, born and bred in mining communities, drift into other occupations, I am led to conclude that the underlying cause for their choice is the lack of early education in mining and its allied subjects.

In our school system, even in mining communities, it would seem that little, if any, attention is given to the teaching of the rudiments of mining in the common schools. Children are taught almost everything bearing on other callings and industries. But those subjects that deal with underground conditions, the study of the coal for-

mations, methods of getting out the coal, properties and behavior of gases, and the ventilation of mines are almost completely ignored.

It is not strange that this manner of teaching the young has its effect in shaping their future course. There is nothing so receptive and retentive as a boy's mind, at the age of from 12 to 16 years. The information that is imparted to him in that period is undoubtedly retained.

Rudiments of Mining Should Be Taught in the Common Schools

My though is, if more attention was given to the rudiments of mining, in our common schools, the occupation of mining coal as a life work would appeal to a larger class of young men, who would come to view the coal industry in a more favorable light than is possible at the present time.

In closing, let me say that the effect of encouraging American-born young men to choose the occupation of mining would be shown quickly in the decrease of the accident rate in mines. Instead of choosing a clerical position in an office or behind a counter, at $75 a month, more ambitious young men would seek the higher wages and greater opportunities for advancement that are open to them in coal mining.

Mt. Harris, Colo. Thomas Allen.

Firebossing

Time and distance important factors in firebossing—Fall may occur in a place examined shortly before—Miner foolhardy to attempt to pass beyond a fall.

SPEAKING of firebossing and the possibility of a fall taking place after the examination is made and before the men enter for work, I am of the opinion that such a thing is liable to happen at any time and when the fireboss is most conscientious and careful in his work.

It must be remembered that time and distance are two important factors in the work of a fireboss. In many of our large mines, it is not uncommon for a fireboss to have to travel a mile or more underground, before he can reach his section of the mine where his work begins.

Firebosses Ordinarily Given Too Large a Territory

Perhaps, the section in his charge may include two pairs of headings 450 ft. apart. We will say there are twenty places, ten pillars and ten rooms driven to an average depth of 200 ft. on 50-ft. centers, in the first pair of headings and the entries are advanced, say 400 ft. beyond the last room.

It is easy to see that by the time this fireboss has reached the main entry again, he will have traveled at least a mile. He must then go 450 ft. to the mouth of the second pair of headings where, we will say, he has ten more places to examine. The rooms, here, may be driven to an average depth of 150 ft. It is clear that by the time the man has returned to the shaft bottom, he will have traveled between four and five miles.

Fireboss Must Enter Report in Book After Examination

Even walking at the rate of 6 ft. a second, or four miles an hour, more than half his time will be consumed in walking. In the meantime, he has examined for gas and other dangers between thirty and forty places in his section and is fortunate indeed if he gets back in time to enter his report in the book kept for that purpose, before the men enter the mine for work.

In many instances, a fireboss' work is harder and his route longer than what I have mentioned, and he is often obliged to save time by passing through the breakthroughs, at the faces of the rooms, which is a common practice.

Let me say, in closing, that it would be foolhardy for a miner, on entering his place and finding a fall had occurred, to attempt to pass beyond the fall. A person who would deliberately do this and be burned by the gas ignited by his lamp, would deserve all he suffered by reason of his foolhardiness.

Gans, Pa. R. W. Lightburn.

Explosibility of Gaseous Mixtures

Experiments of Bureau of Mines show explosive range of methane and air in presence of carbon dioxide—Influence of other gases not determined.

KINDLY allow me to express my opinion in reference to the explosibility or non-explosibility of the mixture of gases, described in a question given in a recent firebosses' examination, in Indiana, and which was answered in *Coal Age*, Feb. 9, p. 252.

The question stated that a chemical analysis of mine air showed the following composition: Nitrogen, 80 parts; oxygen, 12 parts; marsh gas, 3 parts; carbon dioxide, 3 parts; carbon monoxide, 1 part; hydrogen sulphide, 1 part. The answer given to the question states that this mixture is highly explosive.

In the issue of March 16, p. 455, in reply to a correspondent who expressed doubt as to the mixture being explosive, the editor shows that but eight volumes of oxygen are required to consume the three volumes of methane and one volume, each, of carbon monoxide and hydrogen sulphide; while there are twelve volumes of oxygen present in the mixture, or half again as much as is needed.

Explosion Determined by Trial

My belief is that the question as to a mixture of gases being explosive can only be fully determined by experiment. Not having the necessary equipment for doing this, however, I have examined results of similar experiments performed by the Bureau of Mines, as published in Technical Paper No. 43 entitled "The Influence of Inert Gases on Inflammable Gaseous Mixtures," by J. K. Clement.

The paper describes a series of experiments performed to determine the explosive range of methane when mixed with varying proportions of oxygen, carbon dioxide and nitrogen. For that purpose, mixtures of these gases were introduced into a Hempel explosion pipette and its ignition tested by an electric spark.

A similar series of experiments were performed, on a larger scale, in a steel explosion cylinder, with the result that a wider explosive range of the gas was determined in the larger apparatus. With pure methane and air, no carbon dioxide being present, explosions ceased when the oxygen content fell to 14 per cent, the methane ranging from 6.5 to 6.9 per cent. Under the same conditions in the steel cylinder, explosions ceased when the oxygen content fell to 13 per cent, the gas then ranging from 6.3 to 7.1 per cent; while a 14 per cent oxygen content gave an explosive range of the gas from 6.2 to 8.2 per cent.

Influence of Carbon Monoxide on Explosion of Firedamp

My conclusion is that with an oxygen content of 12 per cent, as stated in the question to which I have referred, there would be no explosion of the mixture. As to the influence of the other two explosive gases, carbon monoxide and hydrogen sulphide, in this mixture, I can only refer to Technical Paper 134, published by the Bureau of Mines and entitled "Explosibility of Gases from Mine Fires."

In that paper, page 13, speaking of the influence of carbon monoxide on the inflammation of methane, after showing that, as the precentage of methane decreases, an increased percentage of carbon monoxide is required to produce inflammation in the mixture, the authors state: "When about 3 per cent of methane is present, there is needed about 6.5 per cent of carbon monoxide to produce an explosion."

Calculation shows that such a mixture contains $(100 - 9.5)0.209 =$ say 19 per cent of oxygen. No experiments are shown with a lower oxygen content; but I am sure that with only 12 per cent oxygen, as in the question to which I have referred, no explosion could occur.

No Reports on Influence of Hydrogen Sulphide

No experiments are available showing the influence of hydrogen sulphide, in mixtures with reduced oxygen content. Although I realize, as stated in the reply to the inquiry (page 455) that both carbon monoxide and hydrogen sulphide are more readily ignitable than methane, and both of these gases are present in this mixture; I fully believe that, while the mixture may be inflammable, it will not explode.

Many factors will modify the ignition and explosion of a gaseous mixture, which depends on the chemical heat of the reaction, the pressure, the source of ignition and its duration, as well as the velocity at which the mixture is moving and other items. Our

technical literature is extremely poor on these matters. MAX SUTER.

Herrin, Ill.

[Experiments under the conditions that prevail in the mine must always throw much light on the question of the inflammation and explosibility of gaseous mixtures. The laboratory experiments referred to by this correspondent have their value; but they fail to even approach the conditions that prevail in practice in the mine. As the correspondent has stated, many factors modify the results obtained.

Referring to Technical Paper No. 43, it should be remembered that the experiments there described relate to mixtures of methane, air and carbon dioxide. The author states (p. 21) as follows: "The results apply to mixtures of these four gases only and not to mixtures containing appreciable quantities of carbon monoxide." It must be remembered, also, that besides carbon monoxide, there is also present hydrogen sulphide, both of which gases materially widen the explosive range of methane, which makes this reference not applicable to the present mixture.

The fact that there is 50 per cent more oxygen in the mixture than is required for the complete combustion of the explosive gases present, inclines one to the belief that the mixture is explosive.—EDITOR.]

Analyzing the Foremen

Need of disinterested inspection of mines—Characteristics of good and bad foremen—Protection of company interests.

AMONG the many interesting points brought out in the discussions that have appeared in *Coal Age* is a remark of George Edwards, in the issue, May 18, p. 845, to the effect that a competent and disinterested person should be employed to inspect the mine and report direct to the management regarding its condition.

I am much in sympathy with this writer's suggestion that such an inspection and report is important in order to maintain a uniform production at a mine. The smaller mines, in particular, have only the report of the mine foreman, and if that is biased the management may be in total ignorance of the true condition existing underground.

CHARACTERISTICS OF DIFFERENT TYPES OF FOREMEN

As is well known, there are foremen and foremen; and the problem of the operator is to know that he has the right man—one on whom he can depend. My impression is that there are three classes of mine foremen, namely: good, medium and bad.

Each of these types or classes have their characteristics. A good foreman is a man who works hard to develop a good mine for the company. Naturally, he meets with difficulties that increase the cost of production. He does not pretend to hide or misrepresent the facts.

This foreman is not noted for his ability to make things appear better than what they are. He is on the job to work and not to spend time and effort in an attempt to deceive or mislead his employers. His thoughts are given to the improvement of the mine and for this he works hard.

In contrast with this type of official, there is the foreman whose chief characteristic is the regard he has for his own interest even to the neglect of the welfare of the company who employs him. His only thought is how to make things appear well to the company as long as he is with them. He gives less attention to maintaining roads and aircourses in good condition, because these items increase the showing on his cost-sheets. His chief efforts are expended in putting out the coal, which he thinks will please the management best.

The report of conditions in the mine, by this type of foreman, is flowery indeed. He always dwells on how much lower he can make the cost-sheet the next month. He continues in this course of deception as long as he feels it is safe and then begins to look for another place where he can play the same game and get away with it, which he always hopes to accomplish.

Midway between these two types of foremen, there is a third class, best described as plodders. They are not particularly dishonest and, perhaps, do not intend to deceive. But, they are wholly unsuccessful in their management of the mine. In a few words a man of this type is not fitted for the position he holds.

KNOW YOUR MINE FOREMAN

In the foregoing, I have attempted to analyze typical mine foremen as we find them in charge of mines. With larger coal companies, the problem of knowing the exact condition of the mine is not as acute as with smaller operations. Many large companies employ private inspectors, besides having other means of knowing the progress and condition of the work underground through their engineers.

Employment of private inspectors is, of course, out of the question with the small operator, which makes it all the more important that he should select and hold the right man in the position of foreman. It goes without saying that such operators should be more than ever cautious in the selection of the foreman; or be, themselves, thoroughly familiar with the conditions inside of the mine. On that, more than on anything else, depends the ultimate success of the operation.

Mayport, Pa. JAMES THOMPSON.

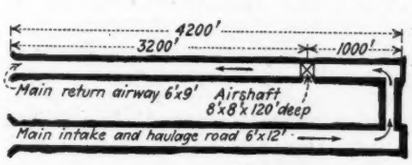
Inquiries Of General Interest

Increasing Ventilation in a Drift Mine

Drift Mine Opened on Hillside—Main Entries Driven Nearly a Mile—Ventilation Becomes Poor—Shaft Sunk One Thousand Feet from Head of Entry

SOME time ago we opened a drift mine on a hillside. The main intake entry and haulage road is driven 12 ft. wide and 6 ft. high. The air-course is 9 ft. wide and 6 ft. high. These entries have now been driven a distance of 4,200 ft. The mine is ventilated by a fan, which produces 40,000 cu.ft. of air per min., at an expenditure of 8 hp.

In order to improve the circulation of air in the mine, it has been proposed



to sink an air shaft at a distance of 1,000 ft. from the face, on the 6x9-ft. air-course. This shaft will be 8x8 ft. in section and 120 ft. deep, measured from the surface to the coal. The question I want to ask is the following: Estimating on an outside temperature of 54 deg. F., and a mine temperature of 60 deg. F., what horsepower will be required to produce a circulation of 60,000 cu.ft. of air per minute in this mine after the change is made?

Pittsburgh, Pa. A. M. ANDERSON.

In replying to this question, we will assume that the two main entries 6x12 ft. and 6x9 ft., in section, respectively, are driven into the hill a distance of 4,200 ft. and practically level. Though not so stated, it is assumed that the fan is located at or near the mouth of the main return air-course and operated on the exhaust system.

We understand that it is proposed to sink an 8x8-ft. shaft, 120 ft. deep, at a point 1,000 ft. from the head of the air-course, as indicated in the accompanying diagram. When this change has been made, it is assumed that the fan will be moved to the top of the air shaft and operated, as before, as an exhaust fan.

The new arrangement will cut out 3,200 ft. of the 6x9-ft. airway and the resistance of the shaft will be added, which is very slight. It is not clear, however, how a circulation of 40,000 cu.ft. per min., can be produced in this

mine by an expenditure of 8 hp. Calculating the power on the air in the usual manner, using the modified Atkinson co-efficent (0.00000002), the horsepower on the air is

$$H = \frac{0.00000002 \times 4{,}200 \times 40{,}000^3}{33{,}000} \left(\frac{36}{72^3} + \frac{30}{54^3}\right) = 46.7 \text{ hp.}$$

Then, assuming the combined efficiency of the fan and engine as 60 per cent, the indicated horsepower of the engine driving the fan is 46.7 ÷ 0.60 = say 80 hp., which the correspondent may have intended to state, instead of 8 hp.

In order to ascertain the power required to increase the circulation from 40,000 to 60,000 cu.ft. per min., by sinking the shaft and cutting out 3,200 ft. of the old air-course, as stated, it is necessary to calculate the potential factors of the main intake, 4,200 ft. long; the return air-course, 1,000 ft. long and the shaft 120 ft. deep, as explained under "Tandem Circulations," Mine Gases and Ventilation, Second Edition, p. 214. The summation of these potential factors gives for the corresponding relative mine potentials, before and after the change, $X_1 = 0.9397$; and $X_2 = 1.179$.

Then, since the power on the air varies as the cube of the quantity and inversely as the cube of the potential factor; and taking the original power as 80 hp., the power required after the change is made will be.

$$H_2 = 80\left(\frac{60{,}000}{40{,}000} \times \frac{0.9397}{1.179}\right)^3 = 136.7 \text{ hp.}$$

In other words, in order to increase the circulation from 40,000 to 60,000 cu.ft. per min., in the manner proposed, will require, say 140 hp.

Examination Questions Answered

Alabama Mine Foremen's Examination, Birmingham, July 24-27, 1922

(Selected First-Class Questions)

QUESTION—*Give your ideas fully as to how and in what parts of a mine sprinkling and spraying should be done and state what are the comparative advantages of each plan.*

ANSWER—Much will depend on the character of the mine, method of working and means employed for mining the coal. In a large mine, particularly when mining a soft, friable coal and using machines for that purpose, an effective spraying system should be installed throughout the mine. This is more important where the coal is highly inflammable and blasting is performed. All roads, travelingways and working places should be thoroughly sprinkled, or sprayed by installing a pipe system extending throughout the mine. Under less dangerous conditions, water cars or lines of hose can be used in place of installing a pipe line. The use of water cars and hose has the advantage of requiring but a small outlay, while a pipe system for spraying is more efficient and water is then always available where it is needed.

QUESTION—*What gases are found in bituminous coal mines? Give the symbol, specific gravity, composition and properties of each gas, its effect on combustion and state where you would expect to find it.*

ANSWER—The principal mine gases are methane (CH_4), specific gravity 0.559; carbon dioxide (CO_2), specific gravity 1.529; carbon monoxide (CO), specific gravity 0.967; hydrogen sulphide (H_2S), specific gravity 1.1912. Besides these, there are the heavy hydrocarbon gases, olefiant gas (C_2H_4), specific gravity 0.978; ethane (C_2H_6), specific gravity 1.0366. The composition of each gas is made known by its symbol.

Methane, carbon monoxide, hydrogen sulphide and the heavy hydrocarbon gases, associated with methane are all combustible and form explosive mixtures with air. Carbon dioxide is an extinctive gas, half again as heavy as air, at the same temperature and pressure. Both carbon monoxide and hydrogen sulphide are extremely poisonous when breathed. Carbon dioxide, though not a poisonous gas produces a strong toxic effect on the system, causing headache, nausea and finally death.

In mining practice, these gases are found mostly where they are generated, the hydrocarbon gases issuing from the pores of the coal and from the strata adjoining; carbon monoxide being generated wherever slow combustion is taking place in abandoned workings, or produced by mine fires or the explosion of powder or gas; and hydrogen sulphide resulting from the disintegration of pyrites in damp places in the mine. The gases lighter than air tend to accumulate at the roof and in other places, while those heavier than air, chiefly carbon dioxide, are to be found accumulated in dip workings and on the floor or other low places in the mine.

QUESTION—*What dangers may arise from the use of electricity in mines? Give your recommendations for avoiding each.*

ANSWER—Mines equipped electrically present the danger of possible contact of men and animals with live wires; possible ignition of gas by the sparking of wires, blowing out of fuses and breaking of incandescent lamps. The first danger mentioned should be avoided by employees being carefully warned by the instructions given them and the notices posted where danger exists; also by properly safeguarding all live wires at points where men and animals must pass under them or near them. The danger of fire, by reason of electrical installations, can only be avoided by all such installations being made by a competent engineer and electrician who understands mining conditions and has every regard for the safety of the men employed in the mine and the security of the property.

QUESTION—*What general conditions would determine the size of pillars and what points should be considered in the removal of pillars?*

ANSWER—In general, the size of pillars in mines is determined by the depth of cover, character of the roof, floor and coal, thickness and inclination of the seam, method of working employed, presence of gas or water in the strata and, lastly, any restrictions relating to damage on the surface due to the extraction of the coal.

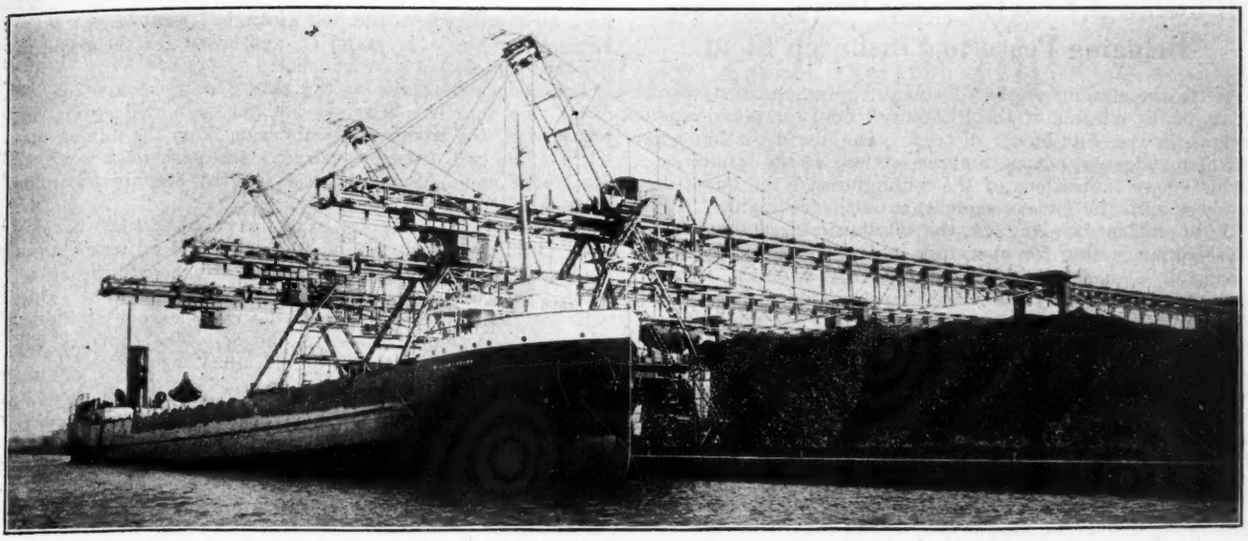
Before the robbing of pillars is commenced, its effect on the future development of the mine must be considered; also, what effect the drawing of pillars will have on adjoining workings and the inflow of water or gas from the overlying strata or from the surface, and what damage, if any, will result on the surface.

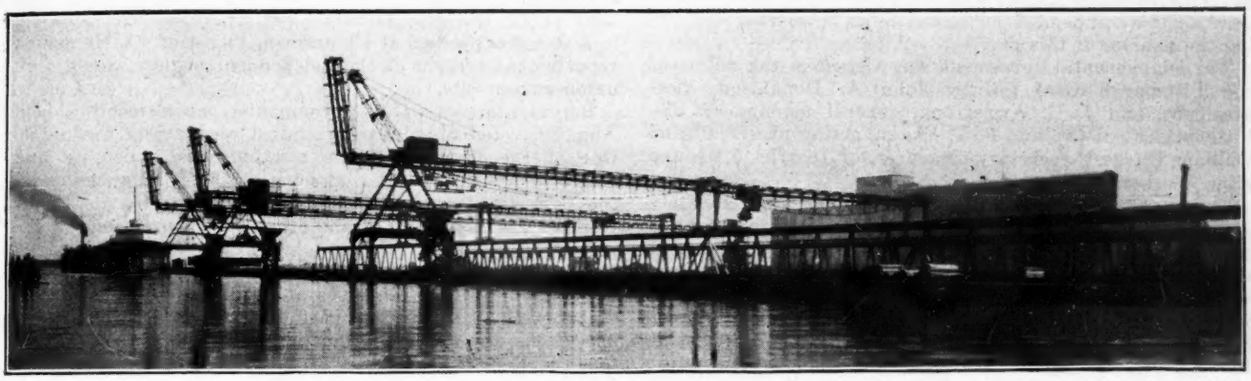
QUESTION—*How should the ventilation of a mine be arranged to reduce friction and gas explosion to a minimum?*

ANSWER—A large mine should be divided into separate ventilation districts. Each district should have its own separate circulation, taken from the main intake airway and discharged into the main return. In each district the air current should be made to sweep the working faces in such manner as to keep them free from any accumulation of gas. Splitting of the air current in this manner will reduce the friction in the mine to a minimum and afford the least danger of an explosion of gas or dust.

QUESTION—*What method would you recommend for timbering working places, keeping in mind the safety of the workmen and the recovery of the greatest amount of coal?*

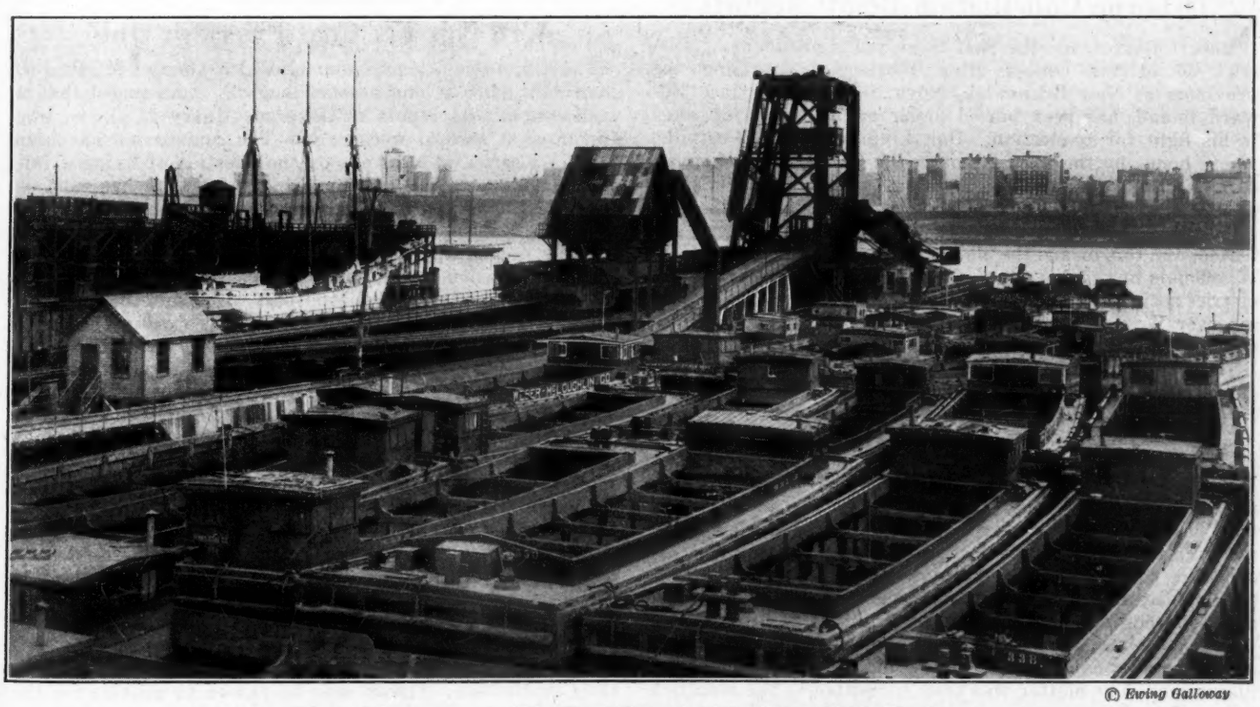
ANSWER—A method of timbering should be employed that is best suited to the conditions at the working face. Where these conditions are more or less uniform, it is well to adopt a systematic method of timbering, the posts being stood in rows parallel to the face and at specified distances apart, the posts in each successive row being staggered. All timbering must be promptly done in the manner described and violations of this rule should be suitably punished.





Million-Ton Duluth Dock Tells Northwest's Coal Story

A "before and after" view of the Pittsburgh Coal Co.'s dock at Duluth, showing the amount of coal carried at the dock in normal times and the long, bare expanse of dock at present. The few piles of coal are for bunker purposes. Some idea of the desperate condition of the Northwest at the end of the coal strike may be gathered from the pictures.



© *Ewing Galloway*

Empty Barges at a Big Fuel Terminal in New York Harbor

Fleet of coal barges lying empty at the Susquehanna R.R. coal pier at Undercliff, N. J., opposite New York City.

Pittsburgh Coal Co. Signs Cleveland Pact, Bringing Peace to Pittsburgh Field

With the signing of the Cleveland conference agreement, Aug. 30, by officials of the Pittsburgh Coal Co. peace again reigns in the Pittsburgh district. The reconciliation was effected suddenly, not as in other sections of the bituminous fields where indications of the willingness of the operators to meet with the miners made apparent a lost fight.

Late on Tuesday, Aug. 29, the Pittsburgh Coal Producers' Association, acting for operators other than the Pittsburgh Coal Co., signed an agreement with the union to resume operations practically under the Cleveland plan. It was the following day that Pittsburgh Coal Co. signed up independently.

The Cleveland agreement as accepted was slightly modified, omitting "approves and" from that section of the agreement, which reads: "the signer of this supplemental agreement approves and accepts the policy adopted by the joint conference of miners and operators held in Cleveland Aug. 15, 1922."

One of the members of the operators' committee had this to say regarding the modification: "We signed because we were forced to, and those who know us would question our veracity if we appended our names to an agreement approving the articles of this one."

The supplemental agreement was signed in the offices of the Pittsburgh Coal Co. by John A. Donaldson, vice-president, and J. H. Armstrong, general manager of the Pittsburgh Coal Co., and P. T. Fagan, acting president, and William Hargest, secretary-treasurer, of District 5, United Mine Workers.

Governor Sproul announced Aug. 29 that approximately 350 of the 1,050 National Guardsmen, on duty in the bituminous coal region in the southwestern part of Pennsylvania since July 21, would be called back to their homes Friday, Sept. 1. The units are those of the 104th Cavalry and the troops are B, stationed at Woodvale; D, Burgettstown; E, Heilwood; F, Clarksville, and a machine gun company at Jenners. It was planned to reduce the headquarters outfit of the field and also the service troops of the medical detachment.

Livingstone New President of District 26; Osborne Conciliation Board Reports

Robert Baxter, for the past three years president of District 26 of the United Mine Workers, comprising the provinces of New Brunswick, Nova Scotia and Prince Edward Island, has been buried under an avalanche of votes in his fight for re-election. Dan Livingstone, of Westville, whose home, by the way, is not in the Cape Breton district, defeated Baxter easily, the majority being very large. The elections were held by mail, Baxter losing at every poll. Silby Barrett, international board member, also was defeated, and this means the end of the opposition among U. M. W. officials of the district to the tactics of J. B. McLachlan, district secretary. McLachlan was re-elected by a wide margin over W. P. Delaney, who has been vice president of the district U. M. U., and in sympathy with the policies of President Baxter and Barrett. The new president, Livingstone, was formerly an international board member, being defeated last year for that office by Mr. Barrett.

The Osborne conciliation board, appointed to adjust the differences between the miners employed by the Inverness Railway & Coal Co. and that company, has made a report recommending that wages for section foremen be $3.70 per day; all other section employees to be admitted as union men and paid as such; bank headsmen 5.5c. per ton for coal and 4.5c. per ton for stone; weighman, a minimum of $100 per month; hoist engineers of category 1, $3.90 per day, and hoist engineers of category 2, $3.70 per day.

Late on Aug. 25 the British Empire Steel Corporation and the union came to an understanding, after four days' discussion. The matter was then submitted to the men in a referendum and the outcome was votes of nearly three to one for acceptance. In fact, Phalen local of Glace Bay, which was the most active in the strike, accepted the agreement by a large majority. But the Springhill local defeated the agreement by a large majority, and asked for the recall of the recently elected district officers.

The men will return to the mines in the course of ten days. No date has been set but the men will surely not return until the troops are withdrawn from the mining districts. This will take several days and perhaps a week, as the troops came prepared for a lengthy stay in the mine fields.

Minimum datal rates are to be increased to $3.25 per day with a minimum increase of 40c. daily and adjustments of higher rates according to a schedule attached to the agreement. Contract rates will be increased 12½ per cent. One-half cent will be added to machine rates except at Sidney mines, where the increase will be ¾c. The contract will terminate not sooner than Jan. 15, 1924.

Independent Connellsville Operators Vote to Stick to Open Shop

Independent coal operators of the Connellsville coke region will never recognize the union but will stand firm on the open-shop policy, declared W. W. Parshall, vice-president of the Fayette County Coal Operators' Association, in a statement issued at Uniontown, Pa., Aug. 31. He denied reports that certain of the independent owners would sign union agreements.

Representatives of fifty companies, at a meeting held Aug. 29, voted unanimously against recognizing the union. One of the features of the meeting was a definite and emphatic announcement that none of the Hillman mines in the Connellsville region would sign the union scale. This was the attitude, also, of the other large operations in the region.

The increase in output from non-union mines in the Connellsville region continues at about the same rate as in recent weeks. During the past week three additional large operations, the Republic plant of the Republic Iron & Steel Co., the Revere plant of W. J. Rainey, Inc., and the Brier Hill Steel Co., resumed work with small forces of strikers who have returned to work with men they have brought in. Throughout the various working plants in the region over 100 strikers have returned to work since the posting of the advanced wage scale.

Will Not Fix Coal Prices in Ohio

The Ohio Fuel Commisson, of which George M. Poor is chairman, after a long session Aug. 31, announced that it would submit its report to Governor Harry L. Davis, who appointed it several weeks ago. The commission has been holding a series of meetings on the question of fixing a fair price for coal in the various Ohio fields, but has not arrived at any decision. It is unofficially announced, however, that the commission will permit the law of supply and demand to prevail, following the example of the Federal Fuel Commission. A number of operators were heard on the subject and it was believed best to permit the ordinary trade developments in the belief that prices will soon decline to what might be considered a reasonable level.

In a recent statement Governor Davis announced that a fair coal price for Ohio will be established even if it was necessary to call a special session of the Ohio General Assembly to enact the necessary legislation. Attorney General John C. Price has been called upon for an official opinion of the power to enact laws for that purpose and he is now looking into the Constitution. Governor Davis wanted to know what, if any, powers the state has under the Constitution to establish or regulate prices of necessites of life under what constitutes a public emergency; what existing legslation there is dealing with such a situation; what new legislation would be possible under the Constitution to make effective such inherent authority as the state has.

Some attorneys have unearthed the following provision in the Constitution: "Laws may be passed to provide for the regulation of methods of mining, weighing, measuring and marketing coal, oil, gas and all other minerals."

Coolness of the Industry Toward Coal Legislation Seen As Shortsighted Policy on Capitol Hill

By Paul Wooton
Washington Correspondent of *Coal Age*

While the coal operators have maneuvered themselves into a position where they must support, outwardly at least, the fact-finding legislation which has passed the House and is now before the Senate, it is quite evident that their support is not wholehearted. Their opposition to the price-control and distribution bill is particularly active. In this they are joined by the American Wholesale Coal Association.

There is a feeling on Capitol Hill and among some of the executive officers of the administration that the course of the coal operators shows a lack of vision. They are moving toward a greater struggle in 1923 than they had in 1922. If prices are high this winter, they will enter the 1923 strike bereft of support from the public and in fact will have to contend with an embittered public opinion. For that reason some argue that they should recognize that this is an emergency and tender their honest advice as to the plan which distribution should follow to get the best results. In some quarters the attitude of the operators and the wholesalers is referred to as typical of their inability to unite on anything other than a policy of opposition. This policy in the past has alienated many of their friends. Senator Frelinghuysen is cited as an example. If any member of the Senate is sympathetic to business it is he, yet his opinion of the coal operators, when expressed privately, would infringe on the postal regulations if it were printed. In the same way this policy has antagonized other members of the Senate and of the House of Representatives, which, combined with a hostile public opinion certain to be engendered by high prices, means that the operators will enter the 1923 struggle under handicaps.

The position of the operators is that the administration is making the same blunders as did the Wilson administration in 1917 when attention is centered on prices rather than on transportation. The drastic Lever law, it is pointed out, resulted in only a few score of indictments for profiteering. The experience with that legislation, the operators contend, should be sufficient proof that prices cannot be regulated satisfactorily by law. It matters little if the price of coal be $1 a ton if coal cannot be obtained. The situation was even worse in 1921, the operators point out, because there is much less coal above ground now than was the case then. It can be said that the direct opposition to the control bill is not limited to operators and wholesalers of coal. A large number of consumers, particularly the larger ones, are objecting to the delegation of authority to the Interstate Commerce Commission which will allow that body to cut them off from their supply of coal. There also is opposition to the measure from Senators who do not believe it good policy to vest such power in the federal government.

Evidently the tactics of the opposition to the pending coal legislation will be to secure delay. Every day that final action can be deferred will diminish the pressure behind the legislation. The rate at which coal will be distributed until the surplus of cars is exhausted will do much to allay public apprehension. The public will not realize that the spurt of production made possible by the surplus of cars cannot be maintained. As the legislation progresses there probably will be a demand on the part of the Pennsylvania Senators for separate machinery to handle anthracite. This will tend to complicate the situation and make it easier to sidetrack the legislation.

The American Wholesale Coal Association also voices determined objection to Senator Reed's (Missouri) amendment to the coal commission bill wherein the wholesalers of coal would be required on the 1st and 15th of each month to report to the Secretary of Commerce the amount of coal purchased and the prices paid for the various grades; the amount of coal sold to retailers and the prices received for the various grades, and the amount of coal sold directly to consumers and the price received for each grade. They also are required to show whether the coal was spot or contract and must cite the date of the contract.

The transportation situation is much more encouraging, although there is doubt, as this is written, as to the effect of the Attorney General's injunction proceeding. Evidently the railroad brotherhoods are much displeased with the shopmen because they did not settle when they had such a favorable opportunity. As a result the bond of sympathy between the shopmen and the brotherhoods has been weakened materially. It also is known that the brotherhoods are entirely out of sympathy with the resort to sabotage.

Official reports by the Interstate Commerce Commission covering the five serious wrecks which have taken place on the railroads during the strike show that four were due to the carelessness of train crews and one was caused by wreckers. In no one of the cases did defective equipment constitute a contributing cause.

Western Kentucky Signs Up with Union on Cleveland Basis Until April 1923

After meeting for three days an agreement was signed up by the Western Kentucky Coal Operators' Association and District 23, United Mine Workers of America, in which the Cleveland agreement contract was agreed upon. The operators objected to the Cleveland conference in October, feeling that as they had never been included before it was an effort to bring the field in to strengthen weakness caused by defection elsewhere. They finally capitulated, however. The new agreement runs until April, 1923.

There was no strike in western Kentucky, as the old agreement carried a no-strike clause, under which the workers continued on the job. It is reported that the new agreement calls for $6.79 for inside workers for an eight-hour day and 74 to 76c. a ton for miners according to type of machine used. Hand-pick miners are reported to draw $1.05 a ton. Mines affected are in Muhlenburg, Ohio, Henderson and Christian counties. Hopkins and Webster counties are principally under another association, known as the Operators' Association, which has a contract which runs until next April.

New Order Releases 34,000 Open-Top Cars

Thirty-four thousand additional open-top railroad cars have been released from preferential loading. This was accomplished by amending the existing priority order so as to exclude open-top cars with sides 42 in. or less in height. Under the original priority order open-top cars with sides less than 36 in. in height were exempted. That order left 62,000 open-top cars for loading with building and road materials. In a letter to General R. C. Marshall, director of the Associated General Contractors, Commissioner Aitchison stated that this action should not be taken as the final word on the subject. Due to the present demand for coal, it is not felt that more cars could be released just at this time, but it was stated that the priority will be relaxed still further just as soon as the situation warrants.

Fifteen Killed in British Columbia Mine

An explosion in No. 4 mine of the Canadian Collieries (D) Co., at Cumberland, B. C., Aug. 30, caused the deaths of fifteen miners, three white men and the remainder orientals. All the bodies have been recovered. There also were sixteen injured. The cause of ignition is unknown.

Pocahontas Operators Revive 1920 Scale; Wage Increase Was Unsolicited

An announcement has been made by the Pocahontas Operators Association that effective Aug. 15 wages have been advanced to the level of the 1920 scale, such action having been taken on Aug. 28, the Pocahontas operators falling in line with other operators in the non-union fields of southern West Virginia. With a return to the 1920 wage scale there will be a heavy increase for all classes of employees in the Pocahontas region, the advance amounting to more than any ever before granted at any one time. There had been two reductions in wages since 1920 but the effect of the increase just granted will be to offset such reductions and to put the miners back on war wages.

The increase made by Pocahontas operators came without the knowledge of miners and was a voluntary act upon the part of the operators, employees not having solicited the increase. It was deemed necessary by the Pocahontas association, however, to restore the 1920 wage scale because of the fact that such a scale was being paid in the Winding Gulf and New River districts and there was a possibility that inroads might be made on working forces by virtue of higher wages paid elsewhere unless the rate was increased. Mines in the Tug River, Kenova-Thacker and that part of the southwest Virginia district tapped by the Norfolk & Western advanced wages as soon as such action was taken further north in the smokeless area. With the advance in the Pocahontas region all southern West Virginia is now on a war-time basis so far as wages are concerned. Higher wages in the mines are increasing the mine forces available but are depleting the labor supply in other industries.

DAY WAGE SCALES OF SMOKELESS DISTRICTS OF WEST VIRGINIA

	Winding Gulf Aug. 16, 1922	New River Aug. 16, 1922	Tug River Sept. 1, 1922	Pocahontas Aug. 16, 1922
Inside:				
Machine runners	$7.58	$7.18	$7.20	$7.20
Machine helpers	7.13	.....	6.60	6.60
Motor runners	7.58	7.18	7.12	6.60
Motor brakemen	6.92	6.77	6.72	6.00
Trip riders	6.77	6.77	.....	.....
Drivers—1 mule	6.65	6.65	6.40	6.00
Drivers—2 mules	6.77	6.77	6.72	6.60
Bratticemen	7.05	7.05	7.12	6.60
Bratticemen helpers	*6.60	6.60	5.60	5.40
Track layers	7.37	7.05	7.12	6.60
Track helpers	6.65	6.65	5.60	5.40
Timber men	7.05	7.05	7.12	6.60
Timber helpers	6.60	6.60	5.60	5.40
Slate shooters	6.89	6.89	7.12	.....
Slate men	6.65	6.65	5.60	6.60
Trappers-men	5.00	.....	5.00	5.40
Trappers-boys	4.00	4.00	4.00	.....
Pumpmen	.....	6.70	5.60	5.60
Skilled wiremen	7.58	7.18	.....	.....
Wiremen helpers	6.60	6.60	.....	.....
Inside greasers—men	6.60	6.60	.....	.....
Inside greasers—boys	4.00	4.00	.....	.....
Inside car couplers—men	6.60	6.60	.....	.....
Inside car couplers—boys	4.00	4.00	.....	.....
All other inside day labor	6.60	6.60	5.60	5.40
Outside:				
Drum runners	7.45	7.10	6.00	.....
Car dumpers	6.65	6.65	6.00	6.00
Top tipple	6.50	6.58	6.00	4.80
Picking table	5.00	6.50	4.80	4.80
R. R. car trimmers	5.00	6.50	4.80	4.80
R. R. cleaner	5.00	6.50	4.80	4.80
R. R. dropper	6.50	6.50	5.20	5.40
Blacksmith	8.10	7.50	7.20	7.20
Blacksmith helpers	6.80	6.80	4.80	6.00
Car repairers	7.39	7.06	6.00	6.60
Greasers—men	6.00	6.50	.....	.....
Greasers—bys	3.85	3.85	.....	.....
Couplers—men	6.00	6.50	.....	.....
Couplers—boys	3.85	3.85	.....	.....
Electricians	8.10	.....	.....	.....
Carpenter foremen	7.50	.....	.....	.....
Carpenters	6.50	.....	6.00	.....
Floating gang	5.00	.....	4.40	4.80

Indiana Trusts Coal Men but Commission Will Deny Cars to Profiteers

Failing to obtain an agreement with Indiana coal operators to fix a price of not more than $3.50 a ton at the mines, the Indiana state emergency coal committee has turned over to the operators the responsibility for the establishment of prices that will be accepted by the public as fair. The decision was reached at a conference in the offices of the Indiana Public Service Commission between the state coal committee and the operators' committee. John W. McCardle, chairman of the utilities commission; Edward Blessing and David Matthews, of the commission represented the state, and William M. Zeller, Jr., and J. T. Moorman the operators.

The operators' committee pointed out at the conference that the adequacy of transportation facilities was the big factor in the price of coal at the present time. Mr. Moorman said he believed the majority of the operators would give the public a square deal and that they would co-operate with the state coal committee in preventing any possible small minority from attempting extortionate prices.

Mr. McCardle said that inasmuch as the state coal committee had no authority to enforce a price on coal it would leave the determination of prices to the judgment of the operators, but that if cases of profiteering were reported to the committee it would exercise its authority to distribute cars only to operators who gave evidence of trying to do the right thing. Mr. Moorman reported the operators were not receiving many orders for coal. Mr. McCardle recommended that all consumers who were expecting to receive coal from Washington cancel their orders and place them with Indiana coal men.

Amend Service Order 23 to Limit Class 1 Priorities to Extraordinary Cases

Official action of far-reaching importance to the country's public utilities was taken on Aug. 29, when the Interstate Commerce Commission issued amendment No. 4 to Service Order No. 23, which restricts Class 1 priorities on coal to such extraordinary cases as may be designated from time to time by the Commission. Coal intended for emergency uses generally is included in Class 2 priority. Owing to the limited time during which lake transportation will be available, shipments of coal from the Northwest to the lower lake points will be made under Class 1 priorities.

The issuance of this amendment brings the situation back to that which existed when J. W. Lieb issued his first circular to the public utilities. It is expected to correct the evils arising under federal fuel distribution, which was cutting off a large number of public utilities from their regular fuel supply, leaving them in an emergency class and compelling them to buy coal at prices greatly in excess of their contracts.

Reports reaching Washington indicate that the public utilities are getting their share of the increased volume of coal being produced, but owing to the fact that reserves have been so generally used up, the situation of a large number of public utilities will continue to be serious for some weeks to come, particularly since they are not allowed to build up stocks and because of the uncertainty of transportation.

Priorities Extended to Cover West, but in Modified and Limited Form

The Interstate Commerce Commission on Aug. 31 issued its Service Order 24, which directs all common carriers by railroad west of the Mississippi River to give priority and preference to the movement of food for human consumption, feed for live stock, live stock, perishable products and fuel, and to the return of empty cars intended to be used for the transportation of those commodities.

Utah Troubles About Over; to Recall Troops

Governor Charles R. Mabey of Utah has under consideration the advisability of recalling the National Guard from the Carbon County coal fields, where they have been on duty for the past few months, following clashes between strikers and the civil authorities. The situation has been quiet for some weeks and the public is getting a little impatient on account of the money needed to maintain the Guard on duty. It is expected that the soldiers will have been sent back to their several communities before these lines appear in print.

Winslow Price-Control Bill Passes House; Senate Debates Cummins Substitute

With Democratic Senators voicing disapproval on the grounds that it is unconstitutional and useless, joined at times by Republican Senators in criticism of the measure, the Cummins administration bill designed to bring about equitable distribution of coal and to prevent exorbitant prices was the subject of free debate last week in the Senate which ranged broadly over the subject of coal, the railroad strike and strikes generally.

The general impression is that the Cummins bill, which has been substituted in the Senate for the Winslow bill on the same subject, which was passed by the House, will pass the Senate after extended debate and possibly with clarifying amendments to meet the objections of some senators that it is too broad in some clauses and too weak in others.

Senator Cummins himself declared that in his opinion the measure passed by the House is unconstitutional in that certain of its phrases may be interpreted as an effort to regulate intrastate commerce, and he therefore effected substitution of his bill for the House bill in the upper chamber.

Meanwhile the Borah bill to create a fact-finding commission to probe into conditions in the coal industry was laid aside at the request of its author when called up Friday, Sept. 1, Senator Borah explaining that the anthracite strike appeared on the eve of settlement in such manner that amendments to his bill might be necessary.

In explaining his bill Senator Cummins said that the greatest question is one of distribution, that the Interstate Commerce Commission needs additional authority to meet the stuation, and secondarily that the bill would operate to check runaway prices. He admitted that retailers could not be controlled entirely by the measure, but asserted that future deliveries could be denied retail coal dealers who might sell at exorbitant prices. He urged speedy action.

Senator Sutherland, of West Virginia, declared that while possibly some legislation should be enacted, in his opinion there was more danger in too hasty action than in too deliberate action.

Senator Frelinghuysen, of New Jersey, called attention to the bills he introduced two years ago and declared that Congress paid little heed, while coal operators and dealers vigorously opposed the measures. Although opposed to nationalization of the mines and government ownership, the New Jersey Senator said he would support the administration coal bills because of the emergency.

Senator Dial, of South Carolina, declared himself in opposition to the distribution bill. He declared that under the voluntary Hoover agreement prices had been increased to those who had contracts for coal. The bill would do harm, rather than good, he asserted.

Senator Underwood of Alabama, the democratic leader, declared the Cummins bill does not give any authority regarding priority of shipments in an emergency to the Interstate Commerce Commission that that body does not already possess under the Transportation Act, to which statement Senator Cummins agreed. The bill merely attempts to regulate prices and will fail in that purpose, declared the Alabama Senator.

Senator Reed, of Missouri, attacked the bill as unconstitutional and inquired at length how it was expected to get more cars to transport coal through mere legislation, greater transportation being the essential need.

Under the stimulant of a letter of approval from President Harding, the Winslow administration bill to regulate distribution of coal and, indirectly, control prices at mines in interstate shipments was passed by the House, Thursday, Aug. 31, 214 to 61.

Only one important amendment was made, that offered by Representative Sanders, of Indiana, providing that the measure shall expire Jan. 1, 1924, which was adopted, 122 to 77. As favorably reported by the Committee on Interstate Commerce, the bill would have been a permanent statute, its operation being suspended by Presidential proclamation at the end of the present emergency but subject to revival by similar proclamation in the event of a future emergency. Otherwise, only perfecting amendments sponsored by committee members were written into the bill, many individual amendments being voted down during the three days of debate.

Attacks against the measure were made by both republicans and democrats of the House, on the grounds that it is unconstitutional, bad policy, will have the effect of retarding coal production, and that while it may regulate the price at the mines it cannot affect the retail price of coal. Opponents of the bill predicted that the precedent thus established will lead to demands to control the price and distribution of wheat, cotton and other commodities when shortages in these arise in the future.

Advocates of the bill defended its constitutionality and declared the necessity exists because of the shortage of coal and impaired transportation facilities.

Chairman Winslow, of the Interstate Commerce Committee, read to the House, Wednesday Aug. 30, a letter from President Harding, under date of Aug. 23, transmitting copies of two bills drafted to meet the coal emergency. One of these was a measure to create a federal agency to buy, sell and distribute coal. The other was the so-called Winslow bill.

The President said that the problem "is a confessedly difficult one. The limitation of constitutional authority on the one hand and the very great demand for government activity on the other combine to make it a problem well worthy of the earnest and early attention of the Congress. It has been a long and tedious route to the resumption of coal production, and the shortage of stocks and the general anxiety has opened a field for profiteering activities which ought to be discouraged in every way possible within the limits of constitutional law."

With the President's letter was one directed to him by Secretary of Commerce Hoover, inclosing the drafts of the two bills, which the Secretary said had been drawn under the direction of the presidential fuel committee, comprising representatives of the departments of Commerce, Interior and Justice and the Interstate Commerce Commission. The committee favored, the Secretary's letter said, the priority order measure as "being less cumbersome, requiring less extension in the federal organization and being more expeditious of application than the alternate plan through actual government possession of coal."

"The committee is in agreement," continued Secretary Hoover's letter, "that the exertion of such powers in times of peace is highly distasteful, and can only be justified as a measure necessary to provide against the effect of a famine in so necessary a commodity.

"We are deeply impressed with the fact that, due to the almost total exhaustion of coal stocks and the inevitable and growing shortage in transportation, the difficulties of the country will be very great even with the resumption of coal production, and unless there is legislation enacted that will curb profiteering and will give control to distribution, there will be great suffering and difficulties during the period of readjustment."

Reading of these letters quieted the criticisms that the President's desires were not known to Congress and it was considered probable that the bill would be driven through the House within an hour, but the fact developed that a quorum was not present and a recess until Thursday was taken.

As passed by the House, the bill extends the authority of the Interstate Commerce Commission to issue orders of priority or embargo in the distribution of coal in interstate commerce, and creates a Federal Fuel Distribution with a Distributor to be named by the President, who may appoint assistants and whose duty is shall be to investigate supplies

and demands, normal prices and current prices of coal and other fuel, and to make recommendations to the Interstate Commerce Commission. It is proposed to deny a car supply to those who charge prices above a "just and reasonable price." Penalties are provided for diverting coal from or by the consignee. An appropriation of $250,000 is carried, $50,000 of this to be available to pay the expenses of the presidential fuel committee in handling the situation through voluntary agreements.

The principal fight against the bill was directed at its price-control features and against the proposal to make it a permanent law. Repeated efforts to amend the former sections were defeated. In the latter attack, the entire section was stricken out in committee of the whole, 85 to 65, on motion of Representative Rayburn, of Texas, supported by Chairman Madden, of the appropriations committee; Representative Graham, of Pennsylvania, and other leaders on both sides, but Chairman Winslow, of the Interstate Commerce Committee, demanded a roll call on this section when the bill was in the House proper and it was restored by a vote of 148 to 134. The amendment of Representative Sanders limiting life of the bill to Jan. 1, 1924, subsequently was adopted over the protests of Chairman Winslow.

Efforts of Representatives Sanders, of Indiana, and Denison, of Illinois, to amend the bill to restrict the appointment and authority of the proposed fuel distributor failed.

Grand Jury in Herrin Case Proves It Means Business; Union Calls It Labor War; State Strike Threat

A miners' union official has been jailed. That is the first and most important development in the grand jury investigation now going on at Marion, Ill., of the Herrin massacre of June 22. The second most important development is a concentrated propaganda campaign launched by President Frank Farrington, of the Illinois miners, intended to show that union labor as such is being warred upon in the prosecution of the case and that union labor proposes to defend itself with its full power against persecution by capital. Developing out of this above-board propaganda, a threat of a general mine strike in Illinois was surreptitiously made throughout southern Illinois.

The one man whom the law seized Wednesday, Aug. 30, the third day of the grand jury sitting, was Otis Clark, head of a union local and employed as a check weighman in a shaft mine. His arrest was sudden and the effect of it was instant upon the forces of organized labor assembled at Marion frankly to defend whatever union men might be involved. The refusal of Attorney General Edward J. Brundage and State's Attorney Delos Duty to permit the release of Clark under bond and the declaration of Brundage that every man in southern Illinois under suspicion was watched so closely that it was too late for flight brought down an angry storm of protest which vented itself in a flood of letters and warnings of other sorts to the officers of the law pushing the investigation.

At the end of the first week of the grand jury's sessions public sentiment in the solid-union region around Marion had grown so heated that almost any sort of outbreak could be expected. The campaign to make the case appear in the light of persecution of labor by moneyed interests began to have such effect that even the "Greater Marion Association" of business men in Williamson County's capital broke loose and notified the Illinois Chamber of Commerce not to stop in Marion this month when the association makes its automobile "good will" tour. The chamber has been active in raising funds to defray part of the expense of the investigation in lieu of state funds for the purpose. The miners gave vent to their feelings in a score of ways, including interference, on Friday and Saturday, with the movement of coal trains out of the southern Illinois fields.

The federal government has agents carefully watching the progress of the case. They may even have taken a much more active part in the collection of evidence than has generally been supposed. The general feeling that "nothing will come of it" has about passed away among the people of the southern end of the state. Even the cloak of careful secrecy with which the jury has surrounded its proceedings thus far has failed to cover up the fact that a mass of incriminating evidence has been accumulated in spite of reluctance of witnesses afraid for their lives.

Grand jury action began on Monday morning Aug. 28 with the impanelling of a jury of 23 men—all miners except one lumber and furniture dealer, one part-time farmer and miner and a foreman who is a farmer now but formerly was a school principal. In his address to the jurors, every one of whom he knows personally, the district judge, DeWitt Talmadge Hartwell, got down from the bench, put his foot on the rail of the jury box and leaned across for a friendly but intense talk on the case that was to follow. The judge told the 23 that they had before them a job for real men, but that he was confident every one of them belonged in that category and that they would reach their findings absolutely without fear or favor. He said it was regrettable that Williamson County stood condemned already in the mind of the nation for lawlessness and a lack of will to enforce the law against criminality. He said he differed from many good friends of his in official position who seemed to hold that idea and that "no considerable percentage of the people of this county can be found who will endorse crime."

Late in the afternoon of Aug. 30, after a long procession of witnesses had gone in and come out of the jury room, the first definite action took place. The quick and quiet indictment and arrest of Otis Clark took place after 4 p.m., when it was noised abroad that Clark had sold a plow for $1.50 and it was feared he was unloading his possessions with a view to disappearing. "They have their first prisoner" was the only comment Frank Farrington would make.

Northern West Virginia Mines Ratify Union Pact; Raise on Merit System in Logan

Many operators in northern West Virginia have entered into an agreement with the United Mine Workers and others are falling into line in both northern West Virginia and the Kanawha field. There are still some that have declined. On Aug. 26 approximately 150 companies operating in subdistrict 4 of District 17 and some in subdistrict 3 had signed the union agreement. This was not true as to the Bethlehem Mining Corporation or any of the companies on the Charleston Division of the Baltimore & Ohio.

In the Kanawha field there has been no change in the alignment, coal companies south of the Kanawha as a rule adhering to the policy of not signing a union contract. In all it is estimated that approximately 300 companies in northern and southern West Virginia have acquiesced in the Cleveland agreement and signed union contracts.

The increase in wages granted by coal companies in West Virginia, whether operating on the open- or closed-shop plan, has disturbed conditions to a marked extent inasmuch as it is causing wholesale desertions from other industries. Road building is being affected to a marked extent, as many contractors were paying only 30c. an hour as against from $6.60 to $7.26 a day paid in the mines. A return to war wages in all industries is foreshadowed owing to the increase granted the miners.

Decision was reached by the Logan Coal Operators' Association late in August to increase wages. The operators made no announcement as to the rate of increase but did make a statement saying that the increases would be granted on the "merit system." It was pointed out that the increase was granted voluntarily by the operators and that it had become possible to make the increase owing to the higher price prevailing on coal. It is stated by Logan operators that the increase applying in Logan territory is equal to if not greater than that granted in other fields where the 1920 wage scale is now in force.

Lewis Compromises on Contract to Sept. 1, 1923 Anthracite Production Expected Next Week

Long deferred, the solution of this year's strike in the hard-coal regions has been found in a compromise, in which the union gets about everything it demanded and the operators are called on to sign up to the miners' terms until Sept. 1, next—that is for about one year—instead of until April 1, 1924. The miners hail this as a victory, and the operators say nothing, save that they will ge glad to get the mines going again.

Negotiations between the miners and operators were broken off in Philadelphia on Tuesday, Aug. 22, to be resumed in Washington on the 29th, following efforts of Secretary Davis and Senators Pepper and Reed, of Pennsylvania, to find some ground for a new conference. On the last day of the month the operators announced that they were ready and willing to start the mines on the miners' terms if the public would give them a "mandate" to that effect, for it is the public that would have to pay the high prices that such a course would entail.

They got the mandate from the public, both in the form of telegrams from over the country and a message from President Harding. Accordingly on Saturday night, Sept. 2, they announced that a tentative agreement had been reached, tentative only in that it must be ratified by the miners' convention, called for this week in the region. The aggreement provides for continuation of the contract that expired last March until Sept. 1, 1923. It is planned to have the mines in operation by Monday, Sept. 11.

The statement of the operators, given to the press on Aug. 31, asking the public to pass on the question of whether the operators should grant the demands of the miners, follows:

"We are faced with a demand for continuation of war wages beyond April 1, 1923. In order to bring about an immediate resumption of mining we have reluctantly agreed to continue the old wages until next April, but we have not felt that we were justified in going further than that.

"The bituminous miners have gone back to work under the old scale until next April. The anthracite producers know of no reason why their men should not do the same thing, and want to be entirely satisfied that conditions warrant a longer period of the old wages for anthracite miners.

"To continue the war wages beyond next April inevitably carries wth it a continuation of present prices. The public has protested against buying at these prices longer than is absolutely necessary. The adjournment taken today was to enable the operators to canvass the situation and to obtain, if possible, the views of others as to conditions which would be fair to all parties concerned, not forgetting those who buy the products.

"If the public necessities for coal and the urgent request of public authorities are such as to induce us to continue the old wages beyond April 1, 1923, this demand must come to us in the form of a public mandate. We will conform our action to such a mandate, but no other reason would impel us to enter into an agreement which will continue for longer than the present emergency prices, to which emphatic objection has already been made."

Illinois Operators Tell Congressmen What Industry's Ills Are and Their Cure

Taking a position opposed to the Cummins bill or anything like it, the Illinois Coal Operators' Association has sent a letter to all Illinois United States Senators and Representatives and some other national legislators stating the operators' stand on the general points now at issue in the industry. The operators contend for arbitration and for making labor unions legally responsible for their acts. They believe some fact-finding body of able, disinterested men should be appointed by the President to study coal. Admitting many ills in the industry, they declare that most of them would be automatically righted if law and order were maintained, adequate transportation of coal guaranteed and wages reduced. The letter follows:

"With respect to pending legislation before the Congress, you will doubtless desire to know the sentiment of Illinois operators.

"(1) They continue to feel and are positive that there can be no correction of the actual or alleged evils of the industry that does not contemplate equal and adequate control of the organized labor in the industry. Legal responsibility for their acts and a clearly defined form of arbitration for every disputed point on which employer and employee may not agree, either in bargaining for a new wage scale and working agreement or in settling disputes afterward arising thereunder, is imperative; otherwise, as the past few months have clearly indicated, the most threatening kind of monopoly will become permanently established and to an extent that will be beyond the control of the government itself, there having been very manifest evidence of the possibility of such ultimate outcome during the past ten weeks.

"(2) Nor is it believed, based upon the experience of the Fuel Administration in 1917 and 1918, as well as the arbitrary action of the Railroad Administration in 1919, that any arbitrary action of the government through bureaucratic organization can handle any situation of emergency for a major industry, as well it can be handled under private ownership. For this reason the Cummins bill is believed to be decidedly inimical to the entire public and to every branch of industry.

"(3) Operators quite universally have publicly and repeatedly stated their belief that through some fact-finding agency appointed by the President, composed of first-class, high-grade, public-spirited citizens, on whom both the operators and miners might depend and in whom the public would have entire confidence, gave promise of the most satisfactory results, through the establishment of the exact facts regarding the production and distribution of coal. The public has never known the facts and never can through any effort of the parties at interest—i.e., the miners and operators—or through any commission or committee the motives of which may be subject to suspicion, because of fear that political expediency might enter into the final determinations.

"(4) Nor do the operators believe any more at this time than they have throughout the past five years that either the disease with respect to sporadic, unfortunate fuel conditions, or the remedy for correction, should be assailed through the coal industry, but shou'd rather be approached through,

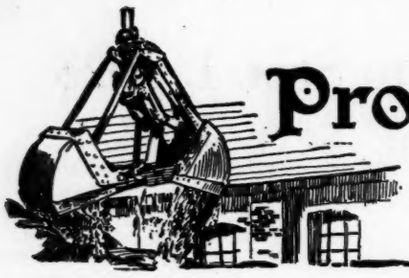
"(a) The guarantee of adequate transportation, and,

"(b) The maintenance of law and order.

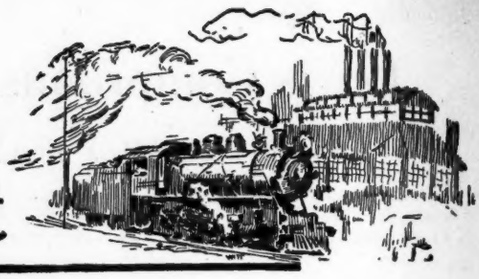
"Prior to the abandonment of these two basic conditions ample and adequate volumes of coal were always available to the American public for any use and at the lowest prices know anywhere in the world, nor throughout all this period were wage earners in the coal-mining industry paid as little as was paid in other lines.

"An average of $1.07½ an hour paid today to Illinois miners for a class of work, as to severity and skill required, for which the steel companies are paying 36c. an hour, is a reflection of approximately the same conditions that have for the past score of years prevailed in the coal industry with respect to wages.

"With the removal of the unwarrantedly indulgent wage rate made available to coal miners during the last five years, through the compelling power of their union, the question of too many mines and too many miners will very promptly correct itself after the same fashion that it has always done so heretofore."



Production and the Market



Weekly Review

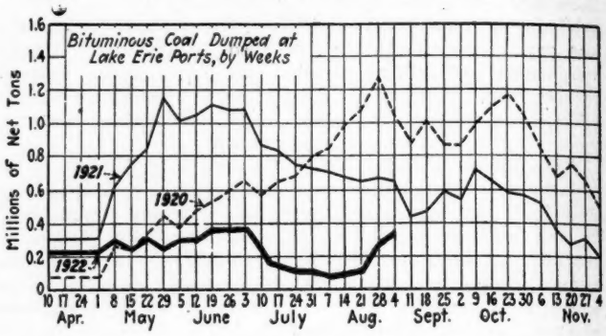
Rapidly mounting production from the bituminous coal mines, as district after district has returned to work, has eased the market and put a soft pedal on high prices. *Coal Age* Index of spot prices of soft coal at the mines dropped 17 points this week, to 420 from 437 a week ago. The high point so far this year was reached the last week of July and since then the decline has been consistent, though unsteady. The average price on Tuesday of this week was $5.08, compared with $6.73 on July 31, the peak. In the West, prices now average under $5 and in the East from that figure up.

The market is still in the process of finding itself. A week ago buyers who could wait were holding off. The market was dropping and the tone of the news was that production soon would be sufficient to take care of everyone. The past week, however, has found many small as well as large users in the market, both because they have reached the bottom of their stockpile and because they feel that prices have little more to slump before touching the base for the immediate future. Prices are irregular and doubtless will continue so until the extent of the expected car shortage is fully developed. The big questions are: To what extent will the soft-coal mines be called on to replace normal anthracite requirements, and at what figure will bituminous coal output be halted by car shortage and transportation disability?

Expect Price Upturn When Weather Gets Cold

It is the present expectation that prices will decline even more for several weeks and then with cold weather and the full pressure of winter demand plus the necessity for winter storage, to start up, slowly at first and then rapidly. What will happen then, it is predicted, will depend on the legislation passed by Congress. If that proves to be effective, provided it is passed, prices may be held in check; otherwise another ascension.

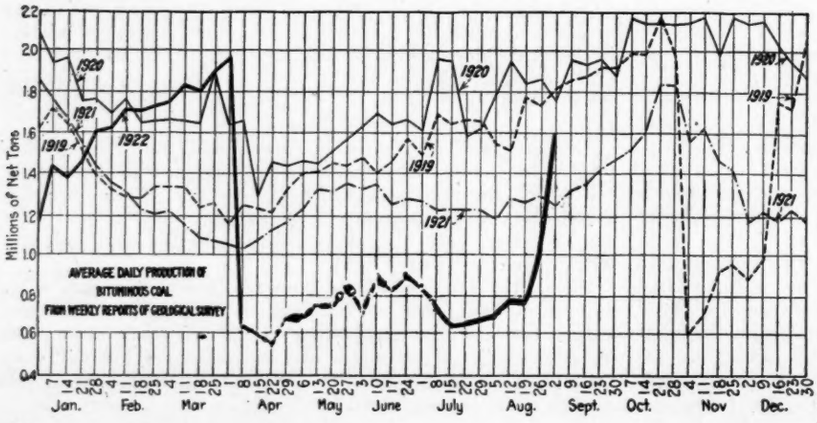
Production last week is estimated at a little short of 10,000,000 net tons, all soft coal. The gains each week are now from the union fields that were on strike, and of course nearest to markets that were shortest of coal. Alabama, for instance, that has been exporting coal north, is cast back on its home markets. West Kentucky



finds its bonanza in Chicago smothered by local output and its fancy prices a thing of the past. Only the Northwest seems in any serious danger and that is because it is so far from the mines and the weeks are few in which to move coal over the Lakes.

Hovering over the eastern part of the United States and likewise the area around the head of the Great Lakes, and also eastern Canada, is the fear of a serious shortage of anthracite for households. Production has been lost for five and a half months, an amount that everyone concedes cannot be made up. The most optimistic predict nothing worse than generous substitution of coke, gas and bituminous coal coupled with parceling out of the available new supply of hard coal. The other side of the picture is carried by those who say that the hard coal that will be available will not suffice to cover the actual needs of those whose habits and necessities require that fuel and that there will be suffering from its lack. The big problem for the fast-forming state fuel-control organizations is going to be domestic distribution during the winter months rather than price control.

Production of beehive coke is too light for



Estimates of Production

(Net Tons)

BITUMINOUS

Week ended:	1921	1922
Aug. 12 (*b*)	7,771,000	4,606,000
Aug. 19 (*b*)	7,708,000	4,609,000
Aug. 26 (*a*)	7,753,000	6,696,000
Daily average	1,292,000	1,116,000
Calendar year	255,147,000	223,521,000
Daily av. cal. yr.	1,272,000	1,109,000

ANTHRACITE

Aug. 12	1,772,000	29,000
Aug. 19	1,529,000	39,000
Aug. 26 (*a*)	1,800,000	35,000

COKE

Aug. 19 (*b*)	50,000	122,000
Aug. 26 (*a*)	57,000	117,000
Calendar year	3,781,000	4,090,000

(*a*) Subject to revision. (*b*) Revised from last report.

furnacemen to attempt to build up a supply. This, rather than the high prices asked, is the main deterrent to buyers.

BITUMINOUS

"Soft coal production shot upward almost as suddenly as five months ago it had plunged downward, when district after district, accepted the Cleveland wage agreement and resumed work," says the Geological Survey. "Late returns for the week ended Aug. 26, indicate an output of 6,700,000 tons of bituminous coal and last week (Aug. 28-Sept. 2) will show 9,200,000 or possibly 9,700,000 tons.

"The rapid gain in output is indicated by the statement below of cars loaded daily. Following a sharp increase on Friday and Saturday, as coal began to flow in volume from the mines of Illinois and Indiana, last week opened with loadings of 30,054 cars on Monday. A decline to approximately 28,000 cars on Tuesday and Wednesday marked the first tightening of car supply. On Thursday additional shipments began from western Pennsylvania, and loadings reached 29,027 cars.

DAILY LOADINGS DURING THE STRIKE

	1st Week	12th Week	18th Week	19th Week	20th Week	21st Week	22nd Week
Monday	11,445	15,311	15,102	16,229	15,703	18,601	30,054
Tuesday	11,019	16,622	11,446	13,729	13,032	17,801	28,153
Wednesday	11,437	17,032	12,447	13,368	12,531	18,524	28,211
Thursday	11,090	16,432	12,380	13,277	13,521	19,388	29,027
Friday	11,296	16,073	12,669	13,539	13,718	22,882	.....
Saturday	8,888	13,993	12,405	11,009	13,524	23,070	.....

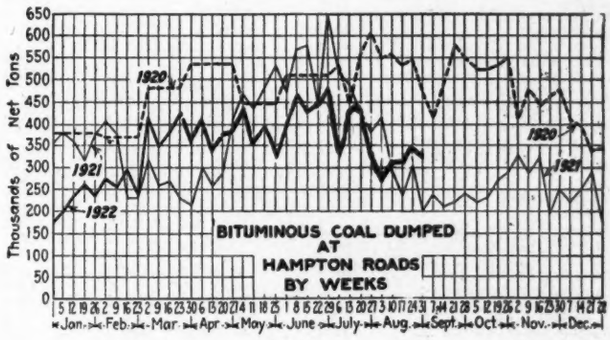
"This increase has come almost exclusively from mines opening under the Cleveland agreement. The non-union districts of the middle and southern Appalachians are still limited by railroad disability and in spite of a slight increase in car supply are producing only 65 per cent of the rate attained before the shopmen's strike.

"In fact complaints of lack of cars have already been received from the union districts of eastern Ohio and northern West Virginia. The limiting factor in production of bituminous coal has thus changed over night. A week ago it was the supply of mine labor; to day it is transportation. The first response of the railroads to the demand for more service has been favorable, partly because they had a surplus of 112,000 empty coal cars when the union mines resumed work. Whether the roads can maintain the present rate of coal movement when the surplus of cars is exhausted remains to be seen.

"Even in the bituminous mines the strike is not yet entirely over. Some thousands of men are still out in the non-union fields of Pennsylvania, particularly the Connellsville coke region, in the Georges Creek field, and in the union districts of West Virginia.

"Shipments during the first half of the week were at a rate of 47 per cent in excess of the daily average for the preceding week and 81 per cent over that for the week of June 19-24.

"The districts showing notably increased shipments were central Pennsylvania, where the daily rate is now about double that of the week before; western Pennsylvania, where the increase is about 40 per cent; Ohio, about 33 per



cent; Indiana-Illinois about 300 per cent; and the Iowa-Missouri-Kansas-Oklahoma-Arkansas-Texas region, about 120 per cent. Increases at these rates can not be expected to continue.

"Shipments in the middle and southern Appalachian regions averaged during the first half of the week about 10 per cent higher. This was due to the large increases on Monday, after which on Tuesday and Wednesday shipments dropped off to less than the average for the preceding week and in some districts to less than shipments on corresponding days of that week. Shipments have declined most in the southernmost districts of West Virginia, in eastern Kentucky and Alabama. Mining in this region is suffering severely from transportation difficulties, and shipments are now at best 700,000 tons less per week than during June.

"The all-rail movement to New England over the Hudson River increased to 917 cars of bituminous coal and 226 cars of anthracite during the fourth week of August. The total all-rail forwardings this year to Aug. 26 amounted to 110,632 cars divided as follows: 50,560 cars of anthracite and 58,553 of bituminous coal through the principal gateways;

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Aug. 7 1922	Aug. 21 1922	Aug. 28 1922	Sept. 5 1922†
Smokeless lump	Columbus	$5.60	$6.10	$6.25	*$4.75@$7.50*
Smokeless mine run	Columbus	5.25	6.00	5.75	*4.50@ 6.50*
Smokeless screenings	Columbus	5.10	5.90	5.60	*4.25@ 6.50*
Smokeless lump	Chicago	6.35	6.85	6.00	**4.75@ 8.00**
Smokeless mine run	Chicago	6.25	6.25	5.75	**4.50@ 8.00**
Smokeless lump	Cincinnati	5.90	5.75	5.75	*4.75@ 6.50*
Smokeless mine run	Cincinnati	5.50	5.50	5.25	*4.50@ 5.00*
Smokeless screenings	Cincinnati	5.40	5.15	5.15	*4.25@ 4.60*
*Smokeless mine run	Boston	8.90	8.70	9.00	8.00@10.00
Clearfield mine run	Boston	6.90	7.60	5.85	*4.50@ 5.50*
Cambria mine run	Boston	7.50	8.75	6.25	*4.50@ 6.50*
Somerset mine run	Boston	6.90	8.00	6.00	*4.50@ 6.00*
Pool 9 (Super.Low Vol.)	New York	8.65	8.00	6.35	*5.50@ 6.00*
Pool 9 (Super.Low Vol.)	Philadelphia	8.25	8.25	7.25	*5.75@ 6.00*
Pool 9 (Super.Low Vol.)	Baltimore	7.25	.....	6.25	6.00@ 6.50
Pool 10 (H.Gr.Low Vol)	New York	8.00	7.50	5.85	*5.25@ 5.50*
Pool 10 (H.Gr.Low Vol.)	Philadelphia	8.00	8.00	7.00	*5.50@ 5.75*
Pool 10 (H.Gr.Low Vol.)	Baltimore	7.25	7.75	5.85	5.75@ 6.00
Pool 11 (Low Vol.)	New York	7.25	6.50	5.35	*5.00@ 5.25*
Pool 11 (Low Vol.)	Philadelphia	7.85	7.75	6.50	*5.00@ 5.25*
Pool 11 (Low Vol.)	Baltimore	7.25	7.75	5.50	*5.25@ 5.50*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	.....	.....	.....	4.75@ 5.50
Pool 54-64 (Gas and St.)	Philadelphia	7.85	6.60	6.00	*4.50@ 5.00*
Pool 54-64 (Gas and St.)	Baltimore	6.25	7.50	5.60	*5.00@ 5.50*
Kanawha lump	Columbus	5.60	6.40	6.00	*4.75@ 7.00*
Kanawha mine run	Columbus	5.50	6.25	5.60	4.50@ 6.75
Kanawha screenings	Columbus	5.10	6.00	5.50	*4.25@ 6.50*
W. Va. Splint lump	Cincinnati	5.85	5.35	5.35	4.75@ 6.00
W. Va. Gas lump	Cincinnati	5.85	5.35	5.35	4.75@ 6.00
W. Va. mine run	Cincinnati	5.50	5.50	5.00	4.50@ 6.25
W. Va. screenings	Cincinnati	5.10	5.10	4.85	4.25@ 5.50
Hocking lump	Columbus	5.85	6.65	6.00	6.00@ 6.50
Hocking mine run	Columbus	5.50	6.25	5.85	*5.00@ 5.50*
Hocking screenings	Columbus	5.35	5.75	5.60	*5.00@ 5.50*
Pitts. No. 8 lump	Cleveland	7.85	6.10	5.75	*5.25@ 5.75*
Pitts. No. 8 mine run	Cleveland	7.85	6.10	5.25	5.00@ 5.50
Pitts. No. 8 screenings	Cleveland	7.85	6.10	5.25	5.00@ 5.50

Midwest	Market Quoted	Aug. 7 1922	Aug. 21 1922	Aug. 28 1922	Sept. 5 1922†
Franklin, Ill. lump	Chicago	.....	.....	$5.05	$4.90@$5.15
Franklin, Ill. mine run	Chicago	.....	.....	4.65	4.50@ 4.75
Franklin, Ill. screenings	Chicago	.....	.....	4.25	4.15@ 4.35
Central, Ill. lump	Chicago	.....	.....	5.10	*4.90@ 5.00*
Central, Ill. mine run	Chicago	.....	.....	4.65	*4.25@ 4.75*
Central, Ill. screenings	Chicago	.....	.....	4.45	*4.15@ 4.50*
Ind. 4th Vein lump	Chicago	.....	.....	5.25	5.00@ 5.50
Ind. 4th Vein mine run	Chicago	.....	.....	4.85	4.65@ 5.00
Ind. 4th Vein screenings	Chicago	.....	.....	4.75	4.50@ 5.00
Ind. 5th Vein lump	Chicago	.....	.....	5.10	4.90@ 5.25
Ind. 5th Vein mine run	Chicago	.....	.....	4.65	4.50@ 4.75
Ind. 5th Vein screenings	Chicago	.....	.....	4.40	4.25@ 4.50
Standard lump	St. Louis	.....	.....	3.90	**4.25@ 5.00**
Standard mine run	St. Louis	.....	.....	3.40	**3.75@ 4.00**
Standard screenings	St. Louis	.....	.....	2.90	**3.50@ 4.00**
West Ky. lump	Louisville	6.35	6.00	5.00	*4.00@ 4.50*
West Ky. mine run	Louisville	6.25	6.00	5.00	*4.00@ 4.50*
West Ky. screenings	Louisville	6.10	6.00	5.00	*4.00@ 4.50*
West Ky. lump	Chicago	6.85	6.00	4.25	3.50@ 5.00
West Ky. mine run	Chicago	6.75	6.00	4.25	3.50@ 5.00
South and Southwest					
Big Seam lump	Birmingham	3.50	4.25	4.75	4.00@ 5.50
Big Seam mine run	Birmingham	3.20	4.25	4.50	*3.50@ 4.50*
Big Seam (washed)	Birmingham	3.50	4.25	4.50	*3.50@ 4.50*
S. E. Ky. lump	Chicago	6.35	6.15	4.75	*3.50@ 5.00*
S. E. Ky. mine run	Chicago	6.25	6.00	4.75	*3.50@ 5.00*
S. E. Ky. lump	Louisville	5.85	5.90	5.25	*4.50@ 5.50*
S. E. Ky. mine run	Louisville	5.75	5.75	5.10	*4.50@ 5.50*
S. E. Ky. screenings	Louisville	5.60	5.65	4.75	**4.25@ 5.50**
S. E. Ky. lump	Cincinnati	5.85	5.90	5.35	**4.75@ 6.25**
S. E. Ky. mine run	Cincinnati	5.75	5.75	5.25	4.50@ 6.00
S. E. Ky. screenings	Cincinnati	5.60	5.10	4.85	4.25@ 5.50
Kansas lump	Kansas City	5.25	.....	6.00	6.00
Kansas mine run	Kansas City	5.15	.....	5.00	5.00
Kansas screenings	Kansas City	4.90	.....	2.85	*2.50@ 2.75*

*Gross tons, f.o.b. vessel, Hampton Roads.
†Advances over previous week shown in heavy type, declines in *italics*.
NOTE—Smokeless prices now include New River and Pocahontas.

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 inclusive	April 3 to Aug. 19, 1922 inclusive	Week Ended Aug. 19
U. S. Total	45.6	55.7	....	....
Non-Union				
Alabama	63.5	64.6	78.5	89.2
Somerset County	55.5	74.9	46.2	55.3
Panhandle, W. Va.	55.3	51.3	44.9	50.7
Westmoreland	54.9	58.8	83.9	84.6
Virginia	54.8	59.9	73.7	60.2
Harlan	53.3	54.8	No report	No report
Hazard	51.7	58.4	47.7	21.0
Pocahontas	49.8	60.0	68.3	56.3
Tug River	48.1	63.7	72.2	54.2
Logan	47.6	61.1	59.1	27.6
Cumberland-Piedmont	46.6	50.6	18.3	28.9
Winding Gulf	45.7	64.3	61.5	33.7
Kenova-Thacker	38.2	54.3	70.7	61.0
N. E. Kentucky	32.9	47.7	47.1	25.1
New River‡	24.3	37.9	30.7	41.0
Union				
Oklahoma	63.9	59.6	14.5	16.0
Iowa	57.4	78.4	0.0	0.0
Ohio, Eastern	52.6	46.6	0.0	0.0
Missouri	50.7	66.8	2.9	7.0
Illinois	44.8	54.5	0.0	0.0
Kansas	42.0	54.9	16.5	14.7
Indiana	41.4	53.8	0.0	0.0
Pittsburgh†	41.2	39.8	0.0	0.0
Central Pennsylvania	39.1	50.2	12.1	14.4
Fairmont	35.3	44.0	4.8	10.9
Western Kentucky	32.5	37.7	61.1	51.4
Pittsburgh*	30.4	31.9	0.0	0.0
Kanawha	26.0	13.0	6.4	8.7
Ohio, southern	22.9	24.3	0.0	0.0

* Rail and river mines combined.
† Rail mines.
? Union in 1921, non-union in 1922.

Car Loadings and Surplusages

	All Cars	Coal Cars
Cars loaded:		
Week ended Aug. 19	856,219	81,959
Previous week	851,351	79,246
Same week a year ago	815,147	152,513
Surplus cars		
Aug. 15, 1922	140,253	111,521
Aug. 8, 1922	153,880	118,044
Same date a year ago	284,388	145,072

223 cars of anthracite and 1,296 of bituminous coal through Rouses' Point."

CARS OF COAL FORWARDED OVER THE HUDSON TO EASTERN NEW YORK AND NEW ENGLAND *a*

	1922		1921	
Week ended	Anthracite	Bituminous	Anthracite	Bituminous
August 12	224	688	2,347	2,480
August 19	189	826	2,498	3,022
August 26	226	917	2,475	2,670

a Figures furnished through cortesy of American Railway Association.

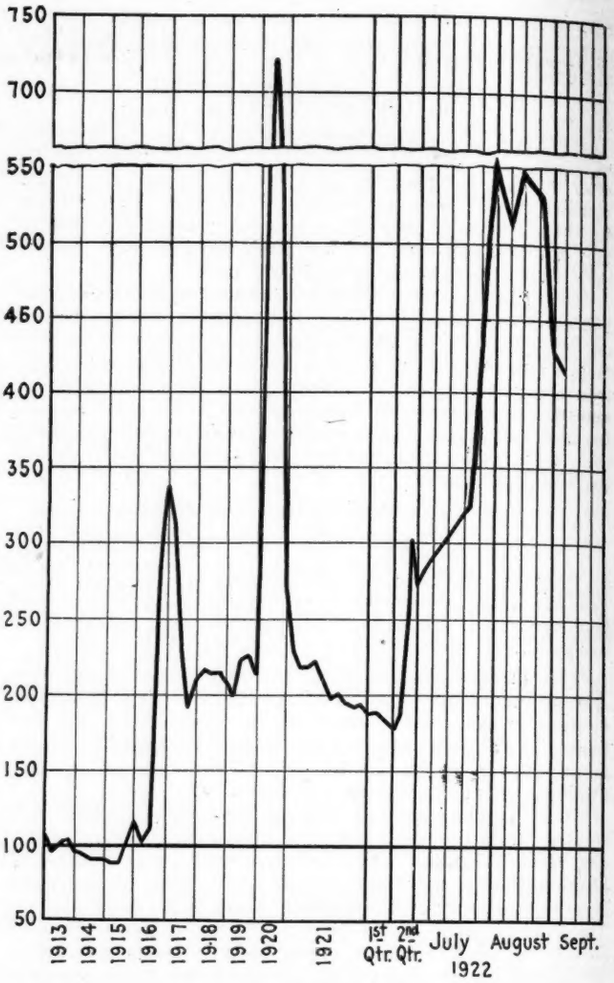
Following the recent order of the Federal Fuel Distributor the flow of coal to the Lakes has greatly increased. During the week ended Sept. 4 total dumpings were 339,961 net tons—305,054 tons cargo and 34,907 tons vessel fuel—as compared with 258,598 tons in the preceding week. The season's total to date is 5,554,014 tons; in the corresponding period of last year 16,739,053 had been dumped. Some Indiana and Illinois all-rail coal is beginning to trickle through to the Northwest, but this tonnage is insignificant as yet.

Hampton Roads dumpings for all accounts were 329,695 net tons during the last week in August, as compared with 350,537 tons in the preceding week. More and more this coal is now flowing in its accustomed trade channels as the maket tension has been lessened by the union resumption.

ANTHRACITE

Production during the week ended Aug. 26 was about 35,000 net tons, principally steam sizes dredged from the rivers. A rush of orders has followed the announcement that mining will soon be resumed and it is hoped that coal will be moving by Sept. 11.

Not much bituminous coal had been sold as a substitute for anthracite as the consumer has felt that soft coal would be available at the last moment, if wanted. Some British coal has been sold for this purpose along the Atlantic seaboard, however, and it is certain that substitute fuel must eke out the current supplies of hard coal for some time, as the output will have to be spread very thinly over a large territory to begin with.



Coal Age Index 420, Week of Sept. 5, 1922. Average spot price for same period $5.08. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the total output of the United State, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shippedd and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. (Pittsburgh District prices not included in figures for last week.)

Experiencing Difficulty With Welsh Coal

SEVERAL PLANTS that are meeting the present fuel emergency through the use of Welsh coal are finding that certain modifications will have to be made in their stokers if they are to carry the same loads as with American coal.

At the plants of the Interborough Rapid Transit Co., New York, approximately a third of the boilers are being supplied with coal from Wales. It is a high-grade coal, running about 14,500 B.t.u., 15 per cent being volatile and 6 per cent, ash. Up to 200 or 225 per cent rating of the boilers the coal gives excellent results but above this it cakes and does not permit the proper quantity of air to pass through the fuel bed. The cake is readily broken, however, and does not seem to be of the nature of a clinker. At these plants the boilers are forced as high as 320 per cent rating and it is, therefore, impossible to run the boiler at more than 70 to 75 per cent of the capacity hitherto attained. It was found that the older type of overfeed stokers which break up the fuel bed handle this coal better than the underfeed stokers.

Therefore the engineering force of the Interborough have endeavored to meet the difficulty by increasing the air passages through the stokers, cutting down the velocity and the pressure from 5 to 3 in. and increasing the volume of air. Tests under these conditions are now being made for the Transit Commission.

Foreign Market And Export News

British Market Feels Effects of American Resumption; French Coals Stronger

The British market has eased off considerably in the past week. Heavier production of bituminous coal in the United States has affected the demand from that section and from Canada. Shippers have heavy orders in hand, however, which will tax export facilities for the next few weeks. European buyers, quick to sense softened demand, are reported to be holding back and prices are showing a downward tendency. Production during the week ended Aug. 19 was 5,158,000 gross tons, according to a cable to *Coal Age*, indicating a sharp recovery from the holiday slump of the preceding week and comparing with an output of 5,122,000 tons for the week of Aug. 5.

It is reported in Glasgow that the Scotch railway rates for coal have been reduced. The new rate will be the prewar rate plus 75 per cent, plus a flat rate of 3d., with a maximum increase of 3s. 6d. Formerly rates were the prewar rate plus 100 per cent, plus a flat rate of 6d.

Hampton Roads Pier Situation

	Week Ended Aug. 24	Aug. 31
N. & W. Piers, Lamberts Point:		
Cars on hand	1,419	1,463
Tons on hand	76,031	82,043
Tons dumped	169,922	157,735
Tonnage waiting	80,175	53,200
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	722	620
Tons on hand	41,800	34,750
Tons dumped	70,155	79,818
Tonnage waiting	53,400	45,199
C. & O. Piers, Newport News:		
Cars on hand	280	526
Tons on hand	14,000	26,000
Tons dumped	72,903	56,820
Tonnage waiting	35,295	19,300

U. S. Strike Aids French Coal Market

The situation of the French coal market is now comparatively satisfactory, and some coal is being taken from stocks. This improvement is, of course, partly due to the United States strike. Not much, if any, French coal has mover across the Atlantic so far.

Of the 1,725,000 tons of German reparation fuel to be monthly supplied from Aug. 1 to Oct. 31 to France, Luxemburg, Belgium and Italy (1,600,000 tons from the Ruhr and 125,000 tons from Upper Silesia) France (with Luxemburg) obtains 1,120,500 tons of the tonnage to be supplied from the Ruhr.

FRENCH PRODUCTION IN JUNE

	Metric tons:
Nord and non-devasted mines	603,305
Pas-de-Calais devasted mines	635,170
Center fields	605,761
Southern fields	348,744
Western minor fields	9,685
Ronchamp mine	8,013
Lorraine field	339,990
Total	2,550,668

France also produced in June 78,929 metric tons of coke and 219,817 tons of briquets. Sarre collieries produced 864,906 metric tons of coal and 19,832 tons of coke. The pit head stocks were 619,285 tons on June 30.

Coal Paragraphs From Foreign Lands

GERMANY—Production in the Ruhr district for the week ended Aug. 19 was 1,813,000 metric tons, according to a cable to *Coal Age*.

ITALY—The price of Cardiff steam first is quoted at 42s. 3d., according to a cable to *Coal Age*, unchanged for the last two weeks.

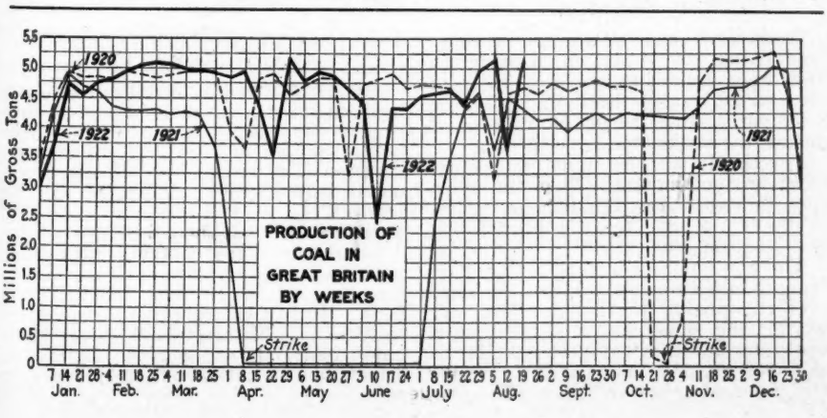
CZECHO-SLOVAKIA—The tax on the exportation of coke has been abolished by a decree of the Minister of Commerce, with retroactive effect as from March 15, 1922.

Rail Situation Improves at Roads

Dumpings during the week ended Aug. 31 showed a slight decline, while for the month the decrease was approximately 1,000,000 tons. During August the piers dumped 1,297,981 tons, against 1,330,364 tons in July.

The tendency of prices was downward, having shown a steady reduction for three weeks. Dealers were expecting still lower prices within ten days.

Dealers were moving about 50 per cent of normal, with a slight increase in prospect. The N. & W. was steadily increasing the movement from the mines, while the two other coal carriers were holding their own.



British Exports, July, 1920, 1921, 1922.

Country	Gross Tons 1920	1921	1922
Russia	7,953	.....	68,238
Sweden	132,274	21,533	229,132
Norway	72,749	21,225	96,435
Denmark	84,266	97,717	219,765
Germany	.....	19,769	1,133,402
Netherlands	.....	82,974	519,999
Belgium	28,900	7,057	199,581
France	961,361	193,474	994,675
Portugal	33,877	22,721	70,663
Azores and Madeira	.....	.....	2,653
Spain	13,256	35,958	157,433
Canary Islands	40,732	13,722	49,995
Italy	246,984	77,852	476,938
Austria-Hungary	10,385	.....	.....
Greece	466	4,414	40,496
Algeria	35,490	29,690	57,223
French West Africa	3,675	.....	5,448
Port. W. Africa	30,849	5,916	7,354
Chile	78	122	14,865
Brazil	11,383	.....	55,673
Uruguay	100	3,949	22,240
Argentine Republic	6,575	26,865	123,036
Channel Islands	17,491	5,784	8,650
Gibraltar	112,278	21,479	48,257
Malta	60,150	19,220	5,814
Egypt	141,545	49,258	70,478
Anglo-Egyptian Sudan	.....	.....	1,002
Aden and Depend	.....	.....	6,723
British India	10	17,932	82,523
Ceylon	.....	.....	24,118
Other countries	44,169	37,689	270,954
Total, July	2,096,996	816,320	5,063,763
Total, June	1,930,608	7,502	4,793,648

QUANTITY AND VALUE OF EXPORTS, JULY AND FIRST SEVEN MONTHS.

	Gross Tons July	1st 7 mos.
1920	2,096,996	16,528,529
1921	816,320	6,841,768
1922	5,063,763	32,247,723
	Value	
1920	£8,928,455	£63,828,924
1921	1,559,649	16,993,209
1922	5,579,538	36,427,301

Pier and Bunker Prices, Gross Tons

PIERS

	Aug. 26	Sept. 2†
Pool 10, Philadelphia	$10.50@$11.00	*$9.50@$10.00*
Pool 11, Philadelphia	9.75@ 10.25	*8.75@ 9.00*
Pool 11, New York	10.00@ 11.00	10.00@ 11.00
Pool 1, Hamp. Roads	7.50@ 10.00	8.00@ 9.50
Pools 5-6-7 Hamp.Rds.	7.50@ 10.00	8.00@ 9.50
Pool 2, Hamp. Rds	7.50@ 10.00	8.00@ 9.50

BUNKERS

	Aug. 26	Sept. 2†
Pool 10, Philadelphia	$10.75@$11.25	*$9.75@$10.25*
Pool 11, Philadelphia	10.00@ 10.50	*9.00@ 9.50*
Pool 11, New York	10.30@ 11.30	10.30@ 11.30
Pool 1, Hamp. Rds	7.50@ 10.00	8.00@ 9.50
Pool 2, Hamp. Rds	7.50@ 10.00	8.00@ 9.50
Welsh, Gibraltar	40s. 6d. f.o.b.	40s. 6d. f.o.b.
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon	43s. f.o.b.	43s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	42s. t.i.b.	42s. t.i.b.
Welsh, Algiers	38s. f.o.b.	38s. f.o.b.
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	43s. f.a.s.	43s. f.a.s.
Welsh, Teneriffe	41s. f.a.s.	41s. f.a.s.
Welsh, Malta	44s. 6d. f.o.b.	44s. 6d. f.o.b.
Welsh, Las Palmas	41s. f.a.s.	41s. f.a.s.
Welsh, Naples	42s. f.o.b.	42s. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	52s. 6d. t.i.b.	52s. 6d. t.i.b.
Welsh, Constantinople	50s. f.o.b.	50s. f.o.b.
Welsh, St. Michaels	50s. t.i.b.	50s. t.i.b.
Welsh, Alexandria	42s. f.o.b.	42s. f.o.b.
Welsh, Port Said	49s. f.o.b.	49s. f.o.b.
Welsh, Buenos Aires	50s. f.o.b.	50s. f.o.b.
Durham, Antwerp	30s. 6d. t.i.b.	30s. 6d. t.i.b
Durham, Hamburg	26s. f.o.b.	26s. f.o.b.

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to Coal Age

Cardiff:	Aug.26	Sept. 2†
Admiralty, large	31s.@32s.6d.	*30s.@31s.*
Steam, smalls	22s.@22s.6d.	22s.@22s.6d
Newcastle:		
Best steams	25s.@26s.	25s.@26s.
Best gas	24s.@25s.	*24s.*
Best bunkers	23s.6s.@24s.6d.	*23s.6d.@24s.*

†Advances over previous week shown in **heavy type**; declines in *italics*.

North Atlantic

Market Weakens With Heavy Influx of Receipts

Absorption of Output Effected by Cut in Spot Prices—Growing Car Shortage Slows Production—British and Southern Water-Borne Coal Plentiful

Heavier receipts have weakened the market. Central Pennsylvania is very active and while the demand is absorbing current production, it has been done by reducing spot prices. That quotations may go very little lower, however, is indicated by a growing car shortage, which is beginning to slow up production at a time when there is need for every pound of coal that can be mined.

Southern coal, via water, continues to arrive in good volume, as does British fuel. The foreign coal is in much less demand since the resumption of union mining and prices are being cut to move the unobligated tonnage now arriving.

NEW YORK

Increased production and continued lack of demand has resulted in a further softening of quotations. More coal is coming forward but a serious car shortage is imminent. Complaint has already been made of conditions along the B. & O. road and it is said the trouble is spreading to other roads.

Southern coals are coming forward freely. The transit companies are well provided it is said and are "practically out of the woods so far as soft coal is concerned." Quotations range $11.25@$11.75 in small boats, this harbor.

Receipts of British coal during the first five days of last week were not as heavy as the previous week. Ten vessels brought slightly over 55,000 tons but many others were believed to be near port. Inquiry has been quieter since the strike settlement, and as production gradually increases it will fall off. Onother factor in the falling off in inquiries is the advancing freight rates. Quotations for British Admiralty were around $9 c.i.f. New York harbor and for Durham gas coals, No. 2 quality, $8.50@$8.75.

There were 784 cars reported at the local docks on Sept. 1, little of it being free coal. High-volatile steam coals were quoted $4.75@$5 25, low sulphur gas coals, $6.25@$6.50 and Broad Top around $6.25.

BALTIMORE

The fact that many production points have begun a steady flow of supplies and that there was every indication of still further increase lead to a brief cut in prices during the past week, but the market is now once more ascending. The demand is such that there is more than ready assimilation of production on a mine basis of $6@$6.50 for the better grade steam coals.

There are offerings of less desirable fuels down to $5.25. Lump gas is demanding $6 or better. The car shortage and the steadily increasing demand for coal has turned the scale of prices upward once more. While the Maryland Distribution Committee is to be kept in existence it is felt in coal circles that their powers will be so circumscribed without federal support that their duties will be largely negligible.

Of interest here was the news from Cumberland, Md., that six of the smaller coal companies operating in the Georges Creek territory have signed an agreement recognizing the union and paying the 1920 scale. The total output of these is small, however.

PHILADELPHIA

All mines are fast getting under way, as the rush to sign up to the union scale has gathered great momentum in the last few days. Almost without exception the operators are bitter in their denunciation of the reasons which have compelled them to bow to the miners, but accept the scale as the only way out for the time being.

The amount of coal offered has increased considerably, and the consumer has shown a greater disposition to buy.

There is a feeling, however, that prices will not drop much lower, and some shippers express the opinion that another upward trend may soon set in. Already there is much complaint of car shortage, especially on the Pennsylvania. This road has claimed all along to be in the best of shape and doubtless the sudden resumption of mining has thrown a load on it for empties that will soon straighten itself out.

So far every one is distributing coal in the best manner possible, as the provisions of the new Fuel Control Act are not fully known, and the application of the same is awaited with much interest.

Foreign coal is still being offered, with some additional charters closed recently. However, the recent drop in domestic prices has been such as to discourage this in some measure. Cargoes on orders placed some time ago are arriving almost daily.

CENTRAL PENNSYLVANIA

Production has advanced to more than 60 per cent of normal. During the first week following the settlement of the strike, daily loadings averaged 2,255 cars, while the low mark reached during the strike was but 450 cars.

Practically all the union mines are now producing coal. The non-union operators absolutely ignored the request of the U. M. W. for a conference in Somerset on Aug. 29.

The non-union operators declare that there is absolutely no chance for them ever recognizing the union. They are paying the same wages as the union operators and they say that is as far as they will go. An increase of more than 100 per cent is shown in the non-union field in Somerset County within the last month. Some of the mines are operating full time.

At the convention, the Somerset union miners passed a resolution to remain on strike until the operators agree to meet them and their district officers in conference or sign individual wage scale agreements according to the policies of the district and national agreements.

FAIRMONT

Although more mines are in operation as a result of the strike settlement, an acute car shortage is greatly curtailing the output. Many of the larger companies have signed a contract with the union but on the Charleston Division of the B. & O. and in the section reached by the Morgantown & Kingwood most of the mines are running on the open-shop plan and no agreement is in prospect.

UPPER POTOMAC

Neither the Upper Potomac nor the Georges Creek operators have signed any agreement recognizing the union, nor is there any prospect that they will take such action and that is responsible for continued idleness in Georges Creek territory. Conditions are different on the Western Maryland in the Upper Potomac field where most of the mines are running and where production is being increased.

West

KANSAS CITY

So far as the coal situation is concerned it is all that could reasonably be expected in the way of supply but there is some grumbling over the price of domestic grades, which is $6 for Kansas lump and nut coal. The price for steam grades started very ragged, but has settled down to $2.50 for Kansas slack and some contracts are being closed at that figure.

The mines are now producing about 50 per cent of their normal capacity and should be producing full if there were a market for it. A great many steam plants have gone to oil and they are not likely to change back to coal just to repeat the change to oil again next April.

The retailer is taking very little coal as he made no money the past two years, due largely to buying too early and running into a much lower market later in the season.

SALT LAKE CITY

Dealers are finding it difficult to meet the demand of their customers, who now realize that delay in putting in their winter supply of coal may prove dangerous. Car trouble is being experienced here already, especially on the D. @ R. G. W. R.R. It is thought the situation will be serious before long.

Local yards are carrying little coal with the exception of that of the Western Fuel Co. which has about 20,000 tons. Most of the others are empty, or next to it. Nothing further has been said regarding an increase in prices. Production is not far short of capacity now.

Anthracite

News of Settlement Brings Flood of Retail Inquiries

Prospect of Early Production Hailed with Relief—Some Time Must Elapse Before Coal Reaches Householder—Substitutes Will Be Needed for a While.

The news that an agreement has been reached and that production will soon be resumed has been hailed with relief by all concerned. The announcement has brought forth a flood of inquiries at retail, but is evident that it will be some time before the householder receives any coal on orders recently placed.

Not much bituminous coal has been distributed as a substitute for anthracite. Some British coal has been sold for this purpose and it is probable that a considerable tonnage of substitute fuel will be used before hard coal is available this fall.

NEW YORK

Dealers and consumers are carefully watching for word that the so-called suspension has been ended and that the miners are returning to the mines. At the same time consumers realize there will be no reduction in prices and that they will be fortunate if they will be able to get their winter coal at the March figures. Some retail realers are delivering small tonnages of pea coal to those customers who want it but there is little if any of the larger sizes to be had in Greater New York.

Considerable pressure through newspaper statements and advertisements is being exerted in an effort to induce the use of bituminous coal and dealers look for increased tonnage as a result. Coke is also being urged as a substitute.

Several of the smaller independent operators have been reported as visiting local wholesale offices during the week inquiring as to the future prospects.

No steam coal except a small quantity of buckwheat and river barley is coming forward. Some pea was quoted around $15, alongside, this harbor. Buckwheat No. 1 was quoted $12 50@ ?13. alongside, and river barley, $5.90 @$6.25. Quotations for river barley f.o.b. loading point was around $3.50.

BALTIMORE

The regular hard coal dealers are fast becoming soft coal dealers, or at least "semi-bituminous" dealers. Every few days another joins the list of suppliers contracting for the English coals which are now running to this port. Ten vessels are now on their way to this port with Welsh coal, some of it in foreign bottoms and some in Shipping Board vessels.

The dealers here as a whole are asking around $13.50 a ton for this British coal, delivered in the cellars of householders. Tests of burning already made show that the coal is good for household purposes. One large dealer here has gone so far as to set up stoves in which he keeps the English coal burning as a demontration to his customers that they are not buying a "pig in a poke."

PHILADELPHIA

The trade is taking it for granted that work will start before the end of the present week. One result of this has been a rush of orders from the retailers, together with users of steam coal, all desiring to get shipments as early as possible. Such orders are being accepted tentatively, although most companies are sending them to the mines to be in readiness when coal comes out again.

So far all preparations for the resumption of shipments have gone forward without taking into consideration the various fuel control measures which have been proposed. The most progress has been made by the State authorities, and while it is on a voluntary basis, at the meetings already held, the retail men have shown a full spirit of co-operation.

With no reduction in wages no one is looking for anything but the prices in effect on April 1 by the companies, and the independents with premiums up to 75c. It follows along the same line that the retail prices will be the same as last winter, although the question of state tax may add something to it.

The consumer demand for pea goes on unabated, with only about 40 per cent of the yards able to make deliveries. In the suburban sections the percentage of yards without coal of any kind is much greater.

River barley is still being freely offered and sold, although there is a tendency to a shading off on account of a better supply of soft coal being offered. Prices recently have been $1.75@$2.50.

BOSTON

The trade received news of the agreement with expressions of genuine relief, although it is realized we face an irksome season. Several cargo dealers have no anthracite at all in stock and there will be a rush to secure any pea the producers have in reserve.

At wholesale, of course, no change has yet appeared. If the mines resume on Sept. 11, it will be the end of the month probably before fresh mined coal reaches this territory.

BUFFALO

It is now given out that a resumption is possible, so we still hope for coal before cold weather. At the same time the consumers do not expect a full supply and there is nothing to do but buy soft coal or coke. It is quite easy at any time to work in some of these substitutes and at a saving in cost, but as a rule the householder is ready to buy straight anthracite if he can get it.

No more has been heard of the enterprising Scranton jobbers who were going to furnish stove or furnace sizes at $17.50 at the mine "as soon as new coal was moving," for the orders do not appear to come in rapidly, but the offer may be repeated when there is coal to sell.

ANTHRACITE FIELDS

Although the miners have won a victory, they have not won as great a victory as they did in the bituminous coal fields. At their Shamokin convention last January, they formulated nineteen demands and they did not succeed in having a single one of them granted. And for that matter neither did the operators win any of their counter demands, so on this score both sides broke even.

The miners have lost twenty-three weeks time out of a contract amounting to seventy-eight weeks and they have lost their pay for that period. So therefore they have lost 29.5 per cent of their income for the period. The operators only asked them to take a decrease of 20 per cent so the men not only have lost the 20 per cent the operators offered them but they have lost 9.5 per cent beyond that amount. Does it pay?

South

VIRGINIA

Transportation difficulties are hard to overcome in the Southwest Virginia field, limiting the output to 60 per cent of potential capacity. Mines on the N. & W. managed to keep production up to about 73 per cent of capacity and the output on the C. C. & O. was increased, but mines on other lines were limited to about 40 per cent. There is little or no free coal available and it is not even possible to supply the demand within the state owing to priority orders.

BIRMINGHAM

There is no lack of demand for coal, inquiry being good from every direction except from Western territory, consumers from that section having practically discontinued the placing of orders in Alabama. The supply of both steam and domestic is being seriously limited by car shortage and sluggish movement.

On account of the increase of 20 per cent granted miners by the operators, effective Sept. 1, an adjusted fair price schedule to absorb this additional cost and provide a margin of profit for spot coal and contract business taken on in future is expected to be announced in a few days by the State Fuel Administration. The withdrawal of Western business is expected to stabilize the trade and hasten a return to normal conditions both as to price and distribution.

The shortage of cars at the mines is assuming a very serious aspect, the three leading mines now furnishing only about 45 to 50 per cent of the equipment needed. Motive power is also badly crippled, allowing cars to remain under load an indefinite time, which contributes to the shortage very materially.

Production for the week of Aug. 19 was reported at 400,000 net tons, but the output has declined considerably during the past two weeks, no figures being available at this time.

Chicago and Midwest

Trade Begins to Liven In Central West Region

Country Demand Rolls In as Customers See Real Shortage and High Prices Ahead—Steam Picks Up Too—Market Remains Fairly Firm.

The much-talked-of softening of the coal market in this territory has not materialized. Car shortage has made itself so distinctly felt in all fields and labor disturbances of one sort and another are popping up so constantly that almost everybody is ready to believe at last that the coal men were right when they prophesied a dry market and costly production this fall and winter. Country and retail demand is heavy and even the steam consumers, who have held out for several days, using up the last of their high-priced strike coal and hoping for a drop in local fuel, have started back into the market.

Railroads cannot extend much comfort to operators. For the time being they are distracted with demands for cars in which to move crops and freight traffic generally has become so heavy and motive power so debilitated that coal is getting a bad deal. Illinois has not yet reached 70 per cent production and Indiana is somewhat short of that, with very little likelihood of either doing any better in the near future. In Illinois a score of tie-ups are due to soreness on the part of miners against company men. Miners' bitterness over the Herrin prosecution apparently is going to lead to further shut-downs if not to the general state mine strike that is threatened.

WESTERN KENTUCKY

Resumption of production in Indiana, Illinois and north of the Ohio River has resulted in an almost complete elimination of western Kentucky coal in the Chicago and some other Northern markets, with the result that operators are endeavoring to locate business, and are reported to be handicapped in finding enough priority business on which they can secure cars for loading.

According to some reports received coal from western Kentucky is being offered as low as $2.25 for screenings, and up to $5 for mine run or lump, at Chicago. However, it is said that anything at under $4 represents either reclaimed bank screenings, or else demurrage coal that brokers have to unload.

Some of the railroads are trying to sidestep their priority contracts for coal, it is said, due to the fact that they are now able to secure coal on shorter haul in other fields, and at a slightly lower price, as it is reported that some coal north of the river has sold under $4. As a result Chicago is refusing to bid more for western Kentucky coal than prices at Northern mines, less the difference in freight from western Kentucky.

SOUTHERN ILLINOIS

The mines of the southern countries are getting at the present time from three to four days per week on account of no cars and budding labor troubles and prices range $4.90@$5.15 for domestic sizes, $4.65 for mine run and $4.50 for screenings, although some screenings and mine run is sold for considerably less. Railroad tonnage is light, everything considered. Somewhat similar conditions prevail in Duquoin and East Jackson County, with the same prices and the same danger of dissatisfaction and trouble. Murphysboro coal is selling at $5.50 for mine run and screenings and $6 for domestic sizes.

In the Standard district practically all mines are working from three to four days per week. Car shortage is unusually severe on the L. & N. Southern, Mobile & Ohio and B. & O. Railroad coal is moving out of this field in pretty fair volume on old contracts. There is a wide variation in the price from $3.50@$4 for 2-in. lump and other steam sizes, including screenings and mine run. Six inch lump is quoted $4.25@$5, and the same for 3x6 egg and 3x2 nut, it all depending upon where the coal must go and who needs it.

INDIANAPOLIS

Indiana prepared sizes may cost Hoosier consumers at least $8.50@$9 a ton in bins this winter, according to calculations of operators and retailers. Consumers will pay even higher prices for coals from outside. At one Indiana mine the quotations were $4.35 for 1¼-in. lump, $4.50 for 2-in. sizes and $5 for other prepared sizes. Following failure of the Indiana emergency coal committee and a committee representing the operators to reach an agreement to fix a price of not more than $3.50 a ton at the mines, which was proposed by the state committee, the responsibility for the establishment of prices has been turned over to the Indiana operators.

CHICAGO

At last the public lethargy appears to be cracking. The coal market is brisking up a bit. And this comes at a time when car shortage is shutting down mine after mine in Illinois and Indiana and making most others run fractional days.

Very little fuel other than that mined in these two states is trading on this market. Illinois coals from the northern and central fields have softened a shade in price but most of the southern field output has held the market firm at $4.25@$5.15. Even screenings are now selling about as fast as they can be delivered for the double reason that strike coal is now about used up and that the steam trade is practically convinced that prices are not going to slump.

ST. LOUIS

Conditions are unusually quiet. Domestic buying is slow and the people have not realized what is ahead of them. A couple of dealers who have been lined up for prosecution for misrepresenting coal have been given some publicity by the papers in which they advised the public to wait for six weeks before buying domestic fuel. These dealers haul strip mine coal from around Belleville and there is market for that except when all other coal is unobtainable.

Country demand is also quiet to some extent for the same reason. Steam buying has not resumed as it should, the contention being that coal is too high. The general feeling is that Standard should have started off at $3, Mt. Olive at $3.50, and Carterville at $4 instead of 50c@$1 above that.

Everything indicates one of the greatest calamities that could befall a big industrial section very shortly when conditions become critical, because the tonnage available will not be anywhere near enough to take care of the demand and prices instead of being reduced must go up.

Retail prices are listed at $8.50 for Carterville, $7.50 for Mt. Olive and $6.75 @$7 for Standard, sidewalk delivery.

LOUISVILLE

Western Kentucky coal is weaker and is quoted $4@$4.50, while eastern Kentucky is $4.50@$5.75, with the bulk of movement at $5@$5.50. On Aug. 21, 23 and 26, roads were placing cars for Lake movement only, but it is reported that the entire movement was not to the Lakes, and that much of the Lake buying was at prices ranging up to $6.

It is believed that it will not be long now before the operators will be forced to quote noticeable differentials between sizes, instead of quoting everything at practically a flat price.

The state fuel commission has suspended operations, under orders from U. S. Fuel Distributor Spencer, and indications are that the railroads will be instructed to lift all classification of priority soon.

Canada

TORONTO

There is plenty of bituminous coal on the market for present requirements, but little demand for it for domestic purposes, as consumers are still hoping to be able to secure a supply of anthracite. Present quotations are about $10.75 for ¾-in. lump and $10 for slack, f.o.b. cars, destination. Dealers show no disposition to order Welsh coal, contending that only soft coal can be obtained from Wales and that they are reasonably sure of obtaining a supply of American bituminous coal.

Fuel Controller J. A. Ellis has issued a warning, giving it as his opinion that it will be impossible to obtain a full supply anthracite during the winter, urging the conservation of fuel.

Eastern Inland

Lake Situation Paramount, Local Markets Being Easier

Receipts Gaining at Lower Ports, Though Retarded by Transit Conditions—Removal of Restrictions and Absence of Price Control Aid Movement—Prices Decline Gradually.

The Lake situation holds the center of the stage. While receipts at the lower ports are growing rapidly they are still much retarded by transportation difficulties. A heavy tonnage must be moved up the Lakes in the remaining twelve weeks of navigable weather if a serious shortage in the Northwest is to be averted during the winter.

Eastern Inland markets are in an easier position. Production is increasing and local fuel shortages are being quickly overcome. Removal of many priority restrictions and the breakdown of Ohio's price regulatory measures have caused a freer movement of coal. Prices are gradually being lowered by the heavier spot offerings and the bargain-hunting tactics of buyers.

CLEVELAND

Chief interest centers upon activities to rush coal to the Northwest in an effort to head off a fuel famine. The slow movement to the lower docks has retarded the operation of pooling arrangements, under which permits for moving coal to the Northwest will be issued by D. S. Robertson, representative of the I. C. C., who will have headquarters at the Ore & Coal Exchange.

Pooling of coal for Northwest started last Friday. Except for special consignments Lake coal is placed first in priority. Receipts at Lake were about 400,000 tons last week. Expect 800,000 this week and 1,000,000 weekly thereafter.

An interesting development since the strike settlement has been the heavy inflow of orders for household coal. Retail dealers literally have been swamped. As yet these orders are being accepted with the understanding that deliveries will be made on them in the order they are received. Some dealers are urging their customers to buy Ohio coal, fearing that the government may find it necessary to shut off West Virginia coal coming into this district for all but Lake shipments. Coke is also being offered as this is in better supply. Orders for Pocahontas are being accepted on the basis of $10.75 a ton for shoveled lump and $12.25 for forked lump.

Industrial demand continues strong. With the breakdown of the present system of local committees on fuel distribution in many parts of Ohio and the abandonment of efforts to establish fair prices, the trend is toward free conditions in the coal market with everything depending on the roads' ability to meet demands upon them.

PITTSBURGH

At a meeting of the Pittsburgh Coal Producers' Association on Aug. 29, the Pittsburgh Coal Co. having previously withdrawn, it was decided to accept the Cleveland agreement. The following day the Pittsburgh Coal Co. signed the scale. Operators in the Freeport vein had previously signed, as had most of the steel companies operating in the Pittsburgh district.

The Connellsville strikers did not return to work in numbers after the posting of notices restoring the scale of Sept. 1, 1920, although some straggled back to work. Many meetings were held at which resolutions were passed to hold out for union recognition. Day by day the trade watched the situation to see when the strike, as a strike, would end. Sept. 1 brought the almost comical denouncement of a car shortage developing of such magnitude as to make it of no interest whether or not additional strikers were disposed to return. All told, a great many new men had been brought into the region.

There has thus far been no regular trading in Pittsburgh district coal, except that recently Youghiogheny gas coal appeared, developing a price of $6.50. Connellsville steam coal, quotable a week ago at $5, weakened to a range of $4.50@$5, while on the appearance of Lake demand and the development of car shortage the market stiffened to a range of $4.75@$5.25. The trading has been light except in Lake coal.

NORTHERN PANHANDLE

Resumption of operations at the few union mines here has tended to increase production but the bulk of the output is coming from open-shop mines since most of the mines in the Panhandle are operated on such a basis. A part of the increased output is going to the Lakes but the railroads also are securing a large tonnage. There is comparatively little free coal available.

EASTERN OHIO

Car shortage and transportation disability were the only deterrent elements of significance which prevented eastern Ohio mines from attaining maximum production during the week ended Aug. 26. Production aggregated 226,000 tons as against a potential capacity of 620,000 tons.

The bulk of mine output during the past two weeks has gone to railroads and public utilities and the anxiety existing with these larger consumers has been somewhat relieved. Buyers in general continue to show a procrastinating disposition toward entering the market at this time. Their anticipation is that coal may be purchased a few weeks later at prices below those now prevailing in the open market.

Spot prices remain firm at the new lows of a week ago and it is not expected by those well informed in the trade that they will recede any further for some little time, as a considerable portion of Ohio coal will be directed to the Northwest. Slack, nut and slack and mine run are quoted $5@$5.50, and lump sizes range $5.25@$5.75.

Receipts of bituminous coal at Cleveland during the week ended Aug. 26 show a substantial increase over the preceding week, total arrivals aggregating 814 cars, 743 cars to industries and 71 cars to retail yards.

DETROIT

Though the railroads report a freer movement of bituminous coal, receipts continue to fall short of daily requirements and the city is "not yet out of the woods."

Jobbers and wholesalers find very little inquiry. The chief impediment to an increased present supply is the inability of the roads on which the coal originates to supply cars and their lack of success in moving loads to connecting roads serving Detroit.

To facilitate distribution of domestic coal, Detroit dealers at a meeting held under the auspices of the Detroit Coal Exchange voted to appoint a committee of five representative retail dealers, which will have supervision over prices and distribution for household use.

COLUMBUS

With all fields working and a large tonnage being produced the market is settling down. The most insistent demand is now coming from dealers who are anxious to secure stocks as early as possible.

Householders are asking for delivery on orders placed with retailers some time ago. Since only a small amount of smokeless is coming into the market the trade is demanding largely upon Hocking and other southern Ohio grades. Hocking lump is selling $6@$6.50 f.o.b. mines. Dealers prices are $9.50@$10. Pomeroy Bend is retailing at about the same figures while Pocahontas lump is $10.50@$11.

The Lake tonnage shipped over the H. V. Docks at Toledo during the week ended Aug. 30 was only 50,276 tons as compared with 56,900 tons the previous week. So far this season the H. V. Docks have shipped 1,774,163 tons as compared with 2,968,000 up to Aug. 27 of last year.

BUFFALO

The trade proceeds slowly toward normal. More to sell is met by an increased demand. How far this movement is to continue is hard to say. The ordering of much coal to the Lakes and the scant car supply will both have an effect. The mines have been accumulating cars as much as possible, so that deliveries as yet are good, but they are not likely to continue.

Miners in the Allegheny Valley in general went to work sooner than those further south and the coal is already on the market. Prices are very unsettled and will remain so awhile yet, for the ideas of buyer and seller are much at variance. Allegheny Valley mine run sells at $5@$5.50 and Pittsburgh 50c. or so higher, with a little Youghiogheny gas at $7. The Lake allotments are likely to cut out most of the No. 8 from this market.

Northwest

Upper Lakes Region Is Still in Coal Ferment

Doubt in Many Quarters over Size Of Fuel Supply to Reach North—Prices Make General Advance Sept. 1, Amid Groans.

The Northwest is almost as badly worried today over coal as it was before the government promised plenty of fuel. Only one or two ports have received any considerable amount during the past week and every one of them has been hit by a general price increase of 75c. or $1, which moves the public to emit loud groans. However, it remains that there is no suffering yet for fuel and essential industries seem to have enough for the time being.

A strong effort has lately been made to get more Illinois and Indiana coal by rail to make up for the fuel that is not coming by vessel. Some coal has arrived by this device but not enough to count for much. Many wise coal men are cautioning the region to restrain its panicky tendencies because the next two weeks will see a Lake Movement that will bring joy to the whole territory.

MINNEAPOLIS

From all present indications, the supply of hard coal reaching the Northwest will be very much reduced—possibly a third of the normal tonnage, if that. This is counting unhatched chickens on the assumption that early incubation may be expected, and that hard coal production will be resumed soon. There were several hundred thousand tons of hard coal carried over—principally of unpopular sizes—but not enough to count heavily.

Increased demand for coke has resulted in the price going up another $1.50. Soft coal of various grades is also being ordered for use in domestic heating plants.

So far, the Northwest has been favored with promises of 400,000 tons of coal a week. But this has not been delivered. Just why cannot be quite determined. New plans follow old ones which prove unworkable. But none of them seems to produce coal. The harvest is over and past, the summer is ended and salvation is still a long way off. There is a great feeling of irritation over the situation.

A little all-rail Illinois coal was rushed up to the Twin Cities the past week, as an encouragement of future hopes in that direction. There is—with some exceptions—no crying need for fuel, though many supplies are close to the vanishing point.

DULUTH

Prices for coal coming up the Lakes after the strike have been announced here. Levels in bituminous are slightly higher than formerly. They are as follows: Youghiogheny, Hocking and Splint—lump, $9; run of pile, $8.50; screenings unquoted. Elkhorn—lump, $9.50; run of pile, $9; screenings, $7.50. Pocahontas—lump, $12; run of pile, $10.50; screenings, $8. These levels no doubt will hold throughout the entire season.

Dock men feel that there will be sufficient coal here to take care of wants for the winter, but that there will not be enough to cause any surplus. Despite reports in the daily papers about the possibility of the Northwest being unable to get coal under priority orders, shipments are coming in in ever increasing volume. Six cargoes have arrived since last week, two are reported on the way, and it is known that more are chartered.

The first evidence of pooling coal at lower ports has been felt here. A shipment of Elkhorn coal intended for one dock has been received by another. This is causing dissatisfaction as reported last week but dock men realize that it is the only solution.

Hard coal is still an unknown factor. There is none to be had, except in certain undesirable sizes.

MILWAUKEE

Coal conditions continue in a jumble with everybody dissatisfied with the conduct of the movement to this section of the country from the mines. Wholesalers have lost faith in the ability of the federal authorities to control shipments and are buying coal at the mines wherever they can and at the prices asked.

Retailers are buried under orders. It will be absolutely impossible to supply the anthracite which these orders call for. The available supply of coke is about exhausted and the price was advanced $1 per ton on Sept. 1. Large sizes now sell for $16 and pea and nut for $14. A general 75c. upward revision of soft coal retail prices took effect Sept. 1. This makes the increase since Aug. 1 total $2.

Thus far no industries or public utilities in this vicinity have been compelled to shut down but many are on the ragged edge for fuel supplies. Lake receipts for the season thus far are as follows, in net tons:

	Anth.	Bit.
April	700	107,609
May	....	195,251
June	....	303,401
July	....	167,799
August	....	72,352
Total	700	846,412
Same period last year	645,230	1,846,180

New England

Withhold Orders as Stocks Are Good and Output Gains

Distress Unlikely Unless Buyers Hold Back Too Long—Early Resumption of Anthracite Mining Would Ease Steam Coal Situation.

A recent survey in this territory shows comfortable stocks for the next sixty days. Reports of much increased production also influence consumers in withholding purchases at present quotations. It may be that some will overstay, but in view of receipts this year so nearly matching those of 1921, it is hard to see how there can be any real distress in this market.

Should anthracite mining be resumed within a fortnight, as now seems probable, a very slight increase in current receipts would make the situation here relatively easy so far as steam coal is concerned.

With the volume of British coal continuing to arrive there is certain to be ample fuel during September and October. Certain foreign cargoes that have reached here unsold have been absorbed only with difficulty, and there are still small barges and lighters being offered on the current market for prices much lower than was quoted c.i.f. in large cargoes. Under these conditions there will be no broad market for bituminous unless car-supply or some other controlling factor intervenes.

The Hampton Roads agencies have made a distinct gain in tonnage. Less coal is being sent to railroads like the Pennsylvania and the Erie, such requirements being met from central Pennsylvania, but it is amazing that, as late as Sept. 2, N. & W. cars were being sent all-rail to help supply the New Haven Road. When Washington undertakes cross-haul movement of this kind it is not surprising that car shortage is predicted.

Consumers who made their contracts on smokeless coals are beginning to hear of the recent wage increase granted in non-union districts, the bill to the consumer amounting to $1 per net ton. This only adds to the confusion between contract coal and priority coal, the net result being a much higher delivered cost for those who have to pay.

There have been increased offerings of Pennsylvania grades for shipment all-rail. Prices range from $4.50 per net ton at first hands to $6@$6.50 per net ton for coal that approximates Navy standard.

Aside from the shortage of anthracite the only possible reason now for any anxiety is over carsupply. The Southern roads have swung the burden for so long that it is only natural their equipment should be more or less crippled. Other roads are in better shape.

Cincinnati Gateway

Normalcy Awaits End of Railway Shopmen's Strike

Report Return of Groups of Workers to Duty—Scarcity of Cars and Condemnation of Locomotives Cripple Production—Prices Soften as Consumers Lay Low.

The shopmen's strike is the nub of the fuel situation. Other rough spots occasioned by the long strike are beginning to show signs of softening and it seems generally agreed that normalcy is not so far off if the railroad workers would get back in the traces. Considerable interest is shown in the report that little groups of workmen of the C. & O. are coming back to work and that the violence is growing more intense. On the L. & N. cars are getting scarce and the action of the I. C. C. in turning down a number of engines doing duty in the fields was a further crippling.

Production is now largely a matter of obtaining cars. Prices are softer, as consumers play a waiting game.

HIGH-VOLATILE FIELDS

Kanawha

Much of the coal originating in the Kanawha region is still coming from open-shop mines although approximately 50 companies in the district have signed an agreement with the union. Production is being slightly increased but cars are so short of requirements that the output of most mines is necessarily limited.

Logan and Thacker

Production was hardly on as large a scale in the Logan region during the latter part of August, owing to an acute car shortage. This diversion of coal to the Lakes made for a shortage of supplies at automobile factories and among other industrial concerns and also cut the supply of free coal.

Mines in the Williamson field are just about managing to maintain production at 165,000 tons a week, owing to the fact that the car supply is not fully equal to the requireemnts of the mines. There is an unusually heavy movement westward through Williamson, particularly since the district has been called upon to furnish a large part of its quota to the Lakes. Although many strikers are drawing benefits in this county, yet as a matter of fact all the men needed are available.

Northeastern Kentucky

Transportation disabilities are still materially handicapping mines so that the output is still under 50 per cent of potential capacity. With a heavy tonnage being shipped to the Lakes under government orders, there is little coal available for general market purposes. Most of the coal is moving at $4.50 or less.

LOW-VOLATILE FIELDS

New River and The Gulf

Production is being gradually increased in the New River field. Upon the signing of a union agreement in other fields miners at a few of the plants in this region declined to go to work, but such a condition was not general and did not affect production. The only factor which is hampering the mines is the difficulty of securing cars and of moving coal after it is loaded. Increased production is resulting, however, in a somewhat larger movement of coal to Tidewater.

Winding Gulf mines are still being handicapped to some extent by a shortage of cars and by the difficulties attendant upon the movement of coal on the western end of the Virginian. Labor is plentiful.

Pocahontas and Tug River

By the end of August production in the Pocahontas region was back on about the same level as observed during the earlier part of the month. A shortage of cars is still handicapping mines to some extent. The Eastern movement is large, there being approximately twice as much coal going to Tidewater and Eastern markets as to Western points. There is also a good deal of fuel moving under priority orders so that there is comparatively little spot coal to be had.

Tug River production is once again above normal, being not far short of 100,000 tons per week. This improvement is due solely to improved transportation facilities on the part of the N. & W. which supplies this territory. All the free coal available, however, is moving under priority regulations.

CINCINNATI

Lake coal is still the uppermost question here. It has been found that the permit system has been merely one of evasion for the shipper who contracted low-priced coal and that priorities are easier to obtain than is healthy for the good of the trade. Word comes that there will be a more comprehensible ruling from Washington that will get coal to the Lakes. The movement in this direction, in spite of all of the impediments that the government has thrown about has been fair with prices on a $6 range.

The Kentucky coal distributing committee has gone by the board and the Huntington committee for the Kanawha section has followed suit. The Ohio dictator has thrown up his hands and decided to let fair price take care of itself. Indiana and Illinois coals are beginning to show that the aching void to the west is being filled, all of which has slowed down the local business that was taking care of this. Here and there a rabid wholesaler is bidding 25c. on top of the spot market and can get all that he is looking for at that price.

Smokeless coals are more in the range of the Hoover prices than the others. Recent wage advances, however, are forcing the 8 per cent commission to be tacked on where possible.

The retail market has taken another spurt upward. The new prices follow: Smokeless lump, $10.50@$11; mine run, $9@$9.50; screenings, $8.75. Bituminous: Lump, $9@$9.50; mine run, $8.50 @$8.75; slack, $8.25.

Coke

CONNELLSVILLE

Coke production has continued increasing, at a moderate rate, until Sept. 1 a car shortage of impressive proportions developed, and operations will be controlled by that factor in future. There remain many strikers whose mental attitude is that they are holding out for union recognition.

Increased production has been chiefly on the part of furnace ovens, and market offerings are but slightly increased. There is no opportunity now for any number of furnaces to resume by reason of increased supplies of merchant coke, whether on old contracts or by fresh buying. Furnace coke was quotable a week ago at $11.50, but the market has since stiffened to a range of $11.50@$12. Furnacemen generally claim prices are altogether too high to justify their considering the market, and talk of $7, but the practical fact is that offerings are too light to encourage a furnace to attempt to build up a supply, irrespective of price.

Foundry coke has been in lighter demand and the market is off $1.50 in the week, being at a range of $13@$13.50.

The *Courier* reports production during the week ended Aug. 26 at 69,900 tons by the furnace ovens and 16,200 tons by the merchant ovens, a total of 86,100 tons, an increase of 3,590 tons.

UNIONTOWN

Just as Connellsville coal operators believed they had the strike situation well in hand the long expected car shortage made its appearance, due principally by demands for equipment from union regions resuming operations. The Connellsville region may now be considered as operating at 50 per cent of capacity despite the continued strike of the recently organized miners. The mines and ovens are being mined by men who have left the union, by other region labor attracted by the present high wage and by imported labor.

Coal closed the week with a quotation of $4.50@$5. Priorities were in force on the B. & O. but the market appeared open on the Pennsylvania. The present effort to coal the Northwest before the Lakes close will have but little bearing on the Connellsville trade, this vein of coal being considered too fine for the Lakes trade.

BUFFALO

Demand is fair, especially for domestic sizes, but the supply has not increased much yet. Reports are sent out that the prices are off, but that seems to mean merely that some very extravagant asking prices have been dropped.

News From the Coal Fields

CONNECTICUT

Thomas W. Russell, of Hartford, has been appointed fuel administrator for the State of Connecticut by Governor E. J. Lake.

Mayor Fred Atwater of Bridgeport is planning to **establish a municipal coal yard** at the city dock, to enable the people of Bridgeport to purchase their winter supply of coal at a price guaranteed to be about $11 per ton, alongside, the purchasers to do their own haulage.

ILLINOIS

The Ellisville Coal Mining Co., of Galesburg, has been incorporated with a capital of $30,000 by William Donaldson, A. B. Donaldson and W. R. Hawkins.

The Mutual Fuel Corporation, Chicago, has been incorporated with capital of $665,000. The object of the company is to acquire and operate coal mines and mining property. The incorporators are John R. Fitzpatrick, Frederick R. Thomas and Guy R. Creelman.

Work will be started soon on the building of the **Jefferson Southwestern R.R.**, according to reports from Mt. Vernon. The road will be built by the **Illinois Coal & Coke Co.**, of Chicago, of which Albert J. Nason is the head. A petition for a rehearing of a controversy over the road has been denied by the State Commerce Commission and it is reported that the roads contesting the case will make no appeal. The road will extend from Jefferson, south to the site of a new mine to be sunk by the coal company building the road.

The Buckheart Coal & Mining Co. has been incorporated with capital of $25,000 and will operate a mine in Buckheart township, Fulton County.

John Ferry is opening a new coal mine on the McKelvie farm, near Brooklyn.

C. V. McShane, of the Chicago office of the White Oak Coal Co., is spending a part of his vacation at the company mines in West Virginia.

INDIANA

The Rea Coal Co. has been incorporated with capital of $10,000 to operate coal lands. The incorporators are George W. Rea, Carl A. Nickey and Fred W. Bender.

The White & Wright Coal Mining Co. has been incorporated with capital of $10,000 to deal in coal, with James A. Wright, Charles J. White and Arthur S. Wright as the owners.

Appointment of a receiver for the **State Coal Mining Co.** has been asked in a complaint filed against the company in Superior Court by H. H. Woodsmall & Co., creditors. The company operates mines in Vigo County. It is alleged that the company is in danger of insolvency and that the mines have not been operated since March 25 because of insufficient funds. Included in the list of liabilities, which the complaint says are owed by the mining company, are a $3,000 mortgage, unpaid labor claims amounting to $172, first installments of this year's taxes and a promissory note for $5,000.

The Winslow Coal Co. has been incorporated with capital of $10,000 to mine and market coal, the incorporators being Edmund C. Landgrebe, Gilbert C. Landgrebe, S. H. Wulfman, F. N. Landgrebe and Frank E. Newlin.

The Nash Mining Co. has been incorporated with capital of $50,000 by Fred Graham, Raymond H. Munshower, L. G. Lewis, A. A. Bibler, J. F. Warner, E. L. Miltonberger, James F. Hildebrand, J. A. Jackson, Edward Hoffer and G. P. Davis.

IOWA

A group of business men of Indianola are interested in the sinking of a new coal mine near that city. J. C. Ward, Kirksville, Mo., is in charge of the work. The syndicate backing the new mine has taken options on about 400 acres of land. Only local men are interested in the project.

The engine room and boiler house of the **Smoky Hollow Coal Co.'s** mine No. 11, south of Hiteman, have been destroyed by fire which swept the plant. The hoisting engine was wrecked, the cables ruined and the cages dropped to the bottom of the shaft. The blaze started in the boiler room.

KENTUCKY

The West Kentucky Coal Co. has opened a new mine between Fairmont and Wheatcroft on the Providence branch of the Illinois Central.

The Kentucky Retail Coal Dealers' Association has sent out a notice of a meeting to be held in Louisville, September 14, to see what can be done to make things better in the coal trade. The letter is signed by **R. A. Watson**, president, and **J. Crow Taylor**, secretary.

The Gordon Hill Development Co., Central City, capital $150,000, has been chartered by W. O. Field, Louisville; J. G. Hodges, of Asheville, N. C.; J. H. Frost, Central City, and N. N. Boyden, Louisville.

A new mine is to be started on the Barret farm, just out of Henderson, on the Illinois Central, to which a spur will be built. W. L. Hughes and William and John Barret are the promotors of the company. It is planned to start development work this fall.

John Marchand has relieved **H. M. Priest** as I. C. C. agent for the Louisville district.

Huntington capitalists have organized the **Big Sandy Coal Co.**, having in view the development of coal property in northeast Kentucky. This enterprise is capitalized at $125,000. Closely identified with it are C. L. Ritter, H. T. Lovvett, M. A. Simms, G. A. Koontz and H. Blaisdell.

MISSOURI

The Hawk Point Coal & Mining Co. is planning to sink a shaft at Hawk Point.

A strip mine has been opened east of Armstrong, and coal is being marketed there. Coal was mined at this place many years ago and hauled to Glasgow, where it was sold to owners of steamboats for firing engines.

The St. Joseph Coal Mining Co. has been incorporated at Lawson with a capital stock of $50,000, and will buy, sell and lease mining lands, sink shafts, mine and operate coal mines. Shareholders are J. W. Stouffer, T. C. Smith and Alex Shepherd.

The Lincoln Coal Co. has been formed at St. Louis, and has filed incorporation papers with the secretary of state at Jefferson City, showing a capitalization of $10,000. The company will own, operate and manage coal mines, coal properties and coke ovens. The shareholders are M. E. Sullivan, J. A. Schultes, J. A. Tighe and P. A. Lavin.

NEW YORK

David Taylor, vice-president, Coal & Iron National Bank, New York, recently returned from his vacation in the Pocono Mountains.

Wm. H. Jaquith, assistant cashier, Coal & Iron National Bank, New York, recently enjoyed a well-earned vacation at Raquette Lake, N. Y.

Effective Sept. 1, **Alfred D. Thompson**, manager of bituminous sales for Pattison & Bowns, Inc., became associated with the Titan Fuel Corporation as vice-president, in charge of sales for central and western New York and western New England, with offices in Utica.

OHIO

A party of officials of the **Maher Collieries Co.** visited the mines of that company in Belmont County during the closing days of August. In the party were Thomas Maher, president, Cleveland; John C. Heinlein, vice-president and general manager, Bridgeport; K. G. Perry, secretary; John A. Maher, treasurer; J. C. Maher, president of the Rodewig Coal Co.; Vincent F. Maher, William J. Maher, general manager; Judge John Pollock, Dr. J. A. Heinlein and Henry Beiberson. No improvements at the company's mines will be authorized until the result of the inspection trip is analyzed.

A new high mark for eastern Ohio coal land was set recently when **D. H. Shields**, editor of the *Bellaire Democrat*, received a consideration reported to be $65,000 for 130 acres of coal in Mead and Poltney townships south of Bellaire. The property was purchased by the **J. A. Paisley Coal Co.**, Cleveland, but according to reports, it will be transferred to the **Rail & River Coal Co.**, in exchange for a similar amount of coal near the Paisley holding at Stewartsville. It is said that each company had practically blocked expansion of the other because of ownership of adjacent lands and that the exchange will enable these companies to expand properties already operating.

Donald M. Hamilton, trustee in bankruptcy of the **Elk Coal & Coke Co.**, has been authorized to sell the real estate of the company, consisting of 12.67 acres in fee simple and coal rights on 378.48 acres at Roseville on the Pennsylvania. The company has been in bankruptcy for some time.

PENNSYLVANIA

Effective Sept. 1, the **Jefferson Coal & Coke Co.**, Pittsburgh, will sell the coal produced by the **Jefferson Gas Coal Co**, **Lindley Coal Co.**, and the **Wet Branch Mining Co.**

Central Pennsylvania will be represented on the committee appointed by W. D. B. Ainey, chairman of the fuel commission, who will look after the speeding up of the production and distribution of coal in the bituminous fields, by Charles O'Neil, Altoona; H. J. Meehan, Johnstown; G. Dawson Coleman, Philadelphia; Rembrandt Peale, Clearfield; William Lamont, El Mora; B. M. Clark, Indiana; Harry Bolton, Clearfield; J. R. Caseley, DuBois, and J. C. Forsyth, Clearfield.

Mines at Carrolltown, Cambria County, opening last week under the Cleveland agreement, include the operations of the Pennsylvania Coal and Coke Corporation, the Navy Smokeless, the West Carroll mine, the Watkins Coal Co., the Snyder and the Burley mines. Seventy per cent of the men returning to work were Carrolltown men and a new era of prosperity dawned upon the northern Cambria mining towns.

The Erie Railroad Co.'s ten small mines in the vicinity of Blossburg and DuBois, Pa., will be operated by the **Peabody Coal Co.**, of Chicago, beginning Sept. 1. The railroad takes practically the entire output. This addition to the Peabody string raises the total number of mines operated by the Peabody interests to forty-six, with a tonnage said to total 20,000,000. The other thirty-six mines spread from the thick-vein coal of Wyoming, eastward through Oklahoma to eastern Kentucky, with the majority of the company's operations in central and southern Illinois.

The Jamison Coal & Coke Co. proposes to develop about 1,200 acres of coal land in South Union Township, Fayette County, and with that purpose in view has awarded contracts for the sinking of two shafts. There is comparatively little virgin coal land left in the Connellsville area and this is said to be one of the few tracts of such property available. Tentative plans call for the product of the new mines to be shipped to the byproduct plant of the Bethlehem Steel Co., at Bethlehem.

The Pennsylvania State Fuel Commission has announced the appointment of special agents to carry out the orders of the Public Service Commission, the I. C. C. and the State Fuel Commission for bituminous coal loading and distribution in the six established regional districts. Appointments were also made of representatives of the public on the six committees, the personnel of which had consisted of operators. The agents are: W. B. Moore, Altoona, for the central Pennsylvania district; J. Patterson, Greensburg, Westmoreland district; J. F. Stewart, Pittsburgh, Washington and Allegheny district; T. J. Davis, Uniontown, Fayette and Greene district; John E. Barr, Butler, northwestern Pennsylvania district; W. J. Kiniry, Somerset, Somerset district. The public's representatives to the six regional committees are: Thomas C. Hare, Altoona, central Pennsylvania district; S. John Morrow, Uniontown, Fayette and Greene district; Dr. Robert B. Greer, Butler, northwestern Pennsylvania district; Charles F. Uhl, Somerset, Somerset district; Thomas A. Dunn, Pittsburgh, Washington and Allegheny district; Robert B. Herbert, Greensburg, Westmoreland district.

The Ayrdale Coal Co., Philadelphia, has notified the State Department at Harrisburg that it has changed its corporate title to the **Argyle Coal Co.**

The Marvel Coal & Coke Co., Allegheny County, has changed its name to the **H. Oliver Coal & Coke Co.**

In the Dauphin County Court the anthracite tax act was recently declared to lack a definite provision relative to ascertaining the value of coal when prepared for the market. J. Claude Bedford, Philadelphia, counsel for the **Mill Creek Coal Co.**, of Philadelphia, which operates Morea Colliery, led the fight against the act, the argument being the first to be heard in the eighty-nine appeals filed from the tax amounts declared by Samuel S. Lewis, Auditor General, to be due the Commonwealth. These appeals relate to cases involving upwards of $2,000,000 in taxes. The other cases will be grouped according to questions raised and will be argued later.

The Graceton Coal & Coke Co. has notified the State Department at Harrisburg of an increase in its indebtedness from $450,000 to $500,000. C. M. Shwerin, New York City, is president.

The Schuylkill County Commissioners have given out their new valuations on coal land properties, which total $432,544,587, compared with $55,907,496 under the old valuations. The new total includes only the coal, and not the surface valuations, which will add about $50,000,000 to the total. Breaker property and buildings will also come under increased figures, which are to be added to the coal valuations and the surface valuations, making the grand total approximately $600,000,000.

The Philadelphia & Reading Coal & Iron Co. has filed an appeal in Dauphin County, from the State coal tax assessed against it for the last six months of 1921, amounting to $477,619. Twenty-five subsidiary companies are affected, being leased by the Philadelphia & Reading company. This is one of numerous similar suits filed and has no direct bearing on the appeals from the constitutionality of the State coal tax law, now before the United States Supreme Court.

TENNESSEE

A new coal mine has been opened at Cartwright by the **Palmetto Coal Co.** The mine is located near the Nashville, Chattanooga & St. Louis R.R. It is the first one to be opened in what is known as the Tracy City field. It will have a capacity of 400 tons a day.

TEXAS

The Dollins Coal & Lumber Co., of Greenville, has been organized with a capital stock of $3,000, to do a retail coal business in connection with the operation of a lumber yard in Greenville. The incorporators are C. M. Davis, Ruby Davis and J. B. Gober.

The Empire Fuel Co., recently organized with a capital stock of $5,000,000 and incorporated under the laws of Delaware, will begin operations immediately in the vicinity of Rockdale. The company owns 5,000 acres of lignite lands in Milam, Limestone and Freestone counties, which will be developed. Adam H. Davidson, of Dallas, is general manager of the company, while A. E. Neisanger, formerly efficiency expert of the Dallas Power & Light Co., at Dallas, is vice-president and general superintendent of the plant. M. R. Summers is local manager at Rockdale. The company is erecting a briquet plant at Rockdale that will represent an expenditure of approximately $1,000,000. The company has taken over the Sparks interests in the Rockdale lignite field, consisting of 1,000 acres of land with five operating shafts; the Santa Fe Lignite Co., of Rockdale, which owns 1,000 acres of land on the Gulf-Colorado & Santa Fe Ry., eight miles east of Rockdale. The company also owns 3,000 acres of undeveloped lignite lands in Limestone County.

UTAH

A. D. Pierson, for the past ten years general sales agent of the Utah Fuel Co., at Salt Lake City, has resigned. He has not yet announced his plans for the future, but may go into business for himself.

The Carbon County R.R. Company, an auxiliary of the new **Columbia Steel Co.**, has received a permit from the Public Utilities Commission to construct a line from a point on the D. & R. G. Western to the company's coalfields which it purchased from the **Utah Coal and Coke Co.** in Carbon County.

John S. Critchlow has been appointed general sales manager of the Utah Fuel Co., Salt Lake City, to fill the vacancy caused by the resignation of **A. D. Pierson.** Mr. Critchlow is well known in Utah coal circles. Of late he has been engaged in the coal brokerage business in San Francisco.

A new mine superintendent of the Utah Fuel Co. is **Thomas Parmley**, who enjoys the ecclesiastical title of "Bishop."

VIRGINIA

Menalcus Lankford has been appointed chairman of the Norfolk Fuel Distributing Committee, and plans are being made by this committee to get Norfolk's supply of coal, estimated to be 12,000 tons to meet the needs of September.

The Chesapeake & Ohio Ry. will erect at Newport News a new steel coal pier, the cost estimated to be in the neighborhood of $3,000,000. The plans for the erection of this pier will not be completed until the board of directors of the road meets later in September. The plans for financing the pier will be mapped out at that time, according to advices received here from Richmond officials. The C. & O. has announced the projected expenditure of $16,500,000 in improvements, one of the principal items of which will be the new pier. This will give Hampton Roads facilities likely to place it abreast of the foremost coal handling ports in the world.

WEST VIRGINIA

The coal holdings, equipment and assets of the **LeMar Coal Co.** have been purchased by the recently organized **Fairmont-Chicago Coal Co.**, which is capitalized at $600,000. The property of the LeMar company was sold at public auction. The purchase price was $82,000. The holdings consisted of about 160 acres of Sewickley coal in addition to a developed mine, a modern tipple and sidetrack. The Fairmont-Chicago company is making a specialty of the production of Sewickley coal.

The Gordon Fuel Co. has been organized by Clarksburg capitalists for the purpose of engaging in the coal business in Harrison County. This company has a capital stock of $50,000. The general office will be at Clarksburg. Principally interested in the new enterprise are: H. G. Smith, P. W. Bailey, M. Gibson, D. K. Smith and T. M. Smith.

The Argonne Coal Co. has been organized in the McDowell County field, having a capital stock of $25,000. Dan is to be the point of operations. Identified with this new enterprise are: F. N. Evans, F. D. Evans, J. N. Evans, Victoria Evans and M. M. Perkins, all of Dan.

Operations on a large scale are presaged by the organization of the **Houck, Reidler Brothers Coal Mining Co.**, just organized for the purpose of developing coal property in Preston County. This company has been capitalized at $400,000. Active in effecting its organization were G. C. Houck, W. O. Houck N. P. Reidler and C. E. Reidler, all of Austen; R. D. Houck, Daniel Houck, of Oakland, Md.; G. W. Reidler, of Tunnelton, W. Va.

Fatalities incidental to the production of coal in West Virginia during July were somewhat less than during earlier months of the year, there being only 23 deaths. As is usually the case, 15 deaths were the result of falling slate. One miner was killed in a mine car accident, two by electrical shock and one in a local gas explosion. The other four deaths occurred outside the mines. More miners were killed in McDowell than in any other single county, there being six deaths in that county.

Coal property in Clay District of Harrison County is to be developed by the **National Gas Coal Co.**, capitalized at $150,000. The offices of this company will be at Wheeling for the time being, Ohio County capitalists being largely interested in the new venture.

The Consolidation Coal Co. has just completed training fifty-five miners in the New River-Pocahontas division at Coalwood in first-aid work, this work being carried on under the direction of George M. Grove, of the United States Bureau of Mines safety station. The Consolidation devotes a good deal of time to training its men in first aid and mine rescue work and has many well-trained crews.

The Banner Coal Co. has been organized with a view to developing coal property in Harrison County and vicinity, this company being capitalized at $50,000. Offices will probably be at Clarksburg. Having an active part in organizing the new company were: E. W. Laubenstein, George C. Butt, S. E. Butt, Susan Butt and Julia Butt, all of Clarksburg.

The Farnum Coal Co. has been sold to the **C. L. & W. Coal Co.**, of Fairmont, of which Alex R. Watson of Fairmont is president. At the time the sale was consummated the Farnum company owned 65 acres of Pittsburgh coal land and a mine near Shinnston in Harrison County.

The Hartland Railroad Co. has been organized by well-known coal people of Charleston, the short-line road to be constructed being for the purpose of tapping several mining fields. This company was organized by J. B. Hart, Edward Hart, Fred O. Blue and R. E. McCabe.

Organization of the **Barton-Weaver Fuel Co.** presages further development of coal land in Upshur County. This company has a capital stock of $15,000. The company will have its headquarters at Buckhannon. Having an active part in effecting a preliminary organization of the company were D. A. Barton, E. B. Weaver, Mary E. Barton, J. M. N. Downes and L. Hyre.

The Brady Coal Corporation, of Fairmont, is giving consideration to the question of purchasing 10,000 acres of coal land in Clay and Nicholas counties, this being in the Kanawha series.

BRITISH COLUMBIA

COAL OUTPUT FOR JULY, 1922

Vancouver Island District

Mine	Net Tons	
Western Fuel Corp., Ltd., Nanaimo	76,395	
Canadian Collieries (D), Ltd., Comox	31,209	
Extension	20,089	
South Wellington	6,595	
Granby Consol. M. S. & P. Co., Cassidy	20,399	
Nanoose-Wellington Collieries, Wellington	7,018	
Old Wellington, Nanaimo	527	
Total	162,232	162,232

Nicola-Princeton District

Coalmont Collieries, Coalmont	15,051	
Middlesboro Collieries, Middlesboro	5,058	
Fleming Coal Co., Merritt	3,191	
Princeton Coal & Land Co., Princeton	629	
Total	23,929	23,929
Total, all fields		186,161

Crow's Nest Pass District

No output on account of strike.

ONTARIO

The Reliance Coal & Coke Co., Ltd., has been organized in Toronto and has been granted an Ontario charter authorizing the company to engage in a general coal handling business. The authorized capital is $50,000, and among the incorporators are E. W. Wright, E. G. McMillan and G. S. O'Brian.

A group of Toronto business men have formed a company known as **The Toronto Coal Briquetting Co.**, and have taken over the defunct Nukol plant for the manufacture of anthracite coal briquets. Manufacturing has commenced and deliveries are being made.

The Toronto Coal Briquetting Co., Ltd., has been incorporated under the laws of Ontario and the charter authorizes the company to deal in and manufacture coal briquets and combustibles. The authorized capital is $250,000 and the provisional directors are C. B. Henderson, O. D. Kester, R. E. Clipsham, R. A. James and B. Rowe, all of Toronto, where the head office will be located.

WASHINGTON, D. C.

The United States Civil Service Commission announces an **open competitive examination for valuation engineer.** Vacancies in the Technical Staff of the Income Tax Unit of the Bureau of Internal Revenue, Treasury Department, Washington, D. C., at $3,600 to $4,800 a year, and in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Separate registers of eligibles will be established for (1) General Mining, (2) Coal Mining, (3) Oil and Gas, and (4) the Forest Industry.

Approval No. 1000 was issued on May 25, 1922, to the **Concordia Electric Co.**, covering equipment approved under Schedule 10A. The equipment is approved for safety and adequacy for hand lamp and trip lamp service as follows: For hand lamp service, when equipped with a white glass dome. For trip lamp service, when equipped with a ruby glass dome and when used with special holder which was tested with the lamp and is furnished by the manufacturer.

Obituary

L. B. Weisenburgh, president of the Valley Ice Co. of Hamilton, Ohio, and owner of coal yards in that city and Middletown, died suddenly on the golf links at Richmond, Ind. **F. B. Scott,** of the Superior Coal Co. of Knoxville, Tenn., died at the Seton Hospital, Cincinnati, recently, after it was thought that he had completed a recovery from rheumatism for which he came from his home for treatment.

Paul T. Spence, 59, secretary-treasurer of the Gibson-Spence Coal Co., Columbus, died at his residence, Upper Arlington, a suburb of Columbus, from the effects of a carbuncle. He was a prominent member of Masonic orders as well as the Rotary Club. He leaves a widow and two sons.

Traffic News

A meeting of the executive committee and advisory council of the **Indiana State Chamber of Commerce** to discuss the freight program of the Chamber as regards the coal situation, was held in Indianapolis recently. Both the Eastern coal case, which is set for a hearing before an examiner of the I. C. C. in Indianapolis on Sept. 11, and the Indiana coal case, which is to be argued before the Indiana Public Service Commission at an early date, as well as the Missouri River and Twin Cities rate cases, were discussed. The Twin Cities case, after being won by the State Chamber and the rate department of the Public Service Commission, was re-opened on petition of St. Louis intervenors. The final hearing will be held in Indianapolis, Sept. 13. The hearing in the Missouri River case will be before an I. C. C. examiner in Indianapolis on Oct. 3. Discrimination in favor of Illinois shippers to Missouri river points is alleged by the Indiana chamber. Complaints of Indiana shippers in the Eastern and Indiana coal cases were filed July 1. Owing to the fact that adjustment of rates in the Indiana coal case was a matter within the province of the Public Service Commission, the I. C. C. instructed the attorneys to redraft the complaint and file it with the state commission. A decision in the short-haul case argued before the Public Service Commission recently is expected soon.

In the complaint of the **City of Clarksville, Tenn.,** an examiner of the I. C. C. has recommended that refund be awarded on shipments of coal from western Kentucky mines served by the L. & N., to Clarksville, Tenn., from June 25, 1918, to March 1, 1920, because of application of unreasonable rates.

In the case involving coal rates from the Southwest to Omaha, the **Omaha Chamber of Commerce Traffic Bureau** has asked the commission to permit the proposed rates to become effective because the 20c. reduction will remove prejudice against Omaha; the proposed rates are reasonable, and that the relationship which will be thereby created between southern Kansas and the Springfield districts will not prejudice Illinois interests.

In the Western coal rate case the **Sheridan-Wyoming Coal Co.** contends that Sheridan, Wyo., is discriminated against and that the relationship between its mines and those located in Montana, Utah, southern Wyoming, Washington and Canada should be revised. Brief for the defendants serving Nevada and California argues that the rates on coal from Utah and Wyoming mines to destinations in Nevada and California are now on the proper basis and should not be disturbed. The Union Pacific System contends that the rates from Utah mines to the Northwest should be differentially higher than from southern Wyoming mines; that the differential should be not less than 50c.; and that lower rates on slack from Utah and southern Wyoming to destinations in Oregon than are applied on lump are justified. Supplemental brief for the Santa Fe submits that the record does not justify any reductions in the present rates.

The I. C. C. will hear oral argument in the complaint of the **Clay County Coal Operators' Association** at Washington on Oct. 24, and the complaint of the **McKell Coal & Coke Co.,** on Oct. 25.

In the case involving rates on coal from the Southwest to Omaha, the **Lincoln Chamber of Commerce** in a brief contends that the proposed reductions in the rates on coal from the Southwest to Omaha and Lincoln have been justified and that the differential in favor of Lincoln over Omaha should not exceed 20c.

The commission has denied a rehearing of the complaint of the **Citizens Coal Mining Co.,** in which it held that rates on bituminous coal from Citizens Mines A and B in the Springfield, Ill., district to various points during federal control were not unreasonable.

Association Activities

The Statistical Committee of the National Coal Association is composed of the following members, to serve from June 1, 1922: Honnold, F. C. (chairman), secretary, Coal Operators' Associations. Barker, G. H., vice-president, Maynard Coal Co., Columbus. Crewe, L. C., president, LaFollette Coal & Iron Co., LaFollette, Tenn. Dickinson, C. C., president, Dry Branch Coal Co., Charleston, W. Va. Guthrie, T. W., president, Hillman Coal & Coke Co., Pittsburgh. Lukins, F. W., president and general manager, Farmers' Fuel Co., Kansas City, Mo. Megeath, W. F., president, Roundup Coal Mining Co., Omaha. Puterbaugh, J. G., president, McAlester Fuel Co., McAlester, Okla. Randall, R. M., general manager, Consolidated Coal Co. of Saginaw, Saginaw, Mich. Robbins, S. H., president, Youghiogheny & Ohio Coal Co., Cleveland. Taylor, C. W., vice-president, W. G. Duncan Coal Co., Greenville, Ky. Wilshire, F. W., vice-president, Consolidation Coal Co., New York City. Jones, W. A., statistician, Central Pennsylvania Coal Producers' Association, Altoona, Pa. Koepler, W. E. E., secretary, Pocahontas Operators' Association, Bluefield, W. Va. McKinney, W. D., secretary, Southern Ohio Coal Exchange, Columbus. Reed, C. E., secretary, West Kentucky Coal Bureau, Louisville, Ky.

The following have been appointed as members of the Finance Committee of the association, to serve from June 1, 1922: Tierney, J. J. (chairman), vice-president and general sales manager, Crozer-Pocahontas Co., Philadelphia. Barnum, Walter, treasurer, Pacific Coast Co., 50 Church St., New York City. Brydon, J. C., president, Quemahoning Creek Coal Co., Somerset, Pa. Clemens, Ira, president, Clemens Coal Co., Pittsburg, Kan. Douglass, E. L., vice-president, First Creek Mining Co., Cincinnati, Ohio. Hutchinson, S. Pemberton, president, Westmoreland Coal Co., Philadelphia. Jenkins, C. H., vice-president, Hutchinson Coal Co., Fairmont, W. Va. Maloney, A. J., vice-president, Chicago, Wilmington & Franklin Coal Co., McCormick Bldg., Chicago. Morrow, J. D. A., vice-president, National Coal Association, Washington, D. C.

Trade Literature

Goulds "Pyramid" Double-Acting Piston Pump. The Goulds Mfg. Co., Seneca Falls, N. Y. Bulletin No. 100. A 2-page circular illustrating and describing the use of this pump, with its low air chambers, for mines. —Advertiser.

The Sullivan Spader. Class "DE-360." Sullivan Machinery Co., Chicago, Ill. Bulletin 70-X. Pp. 4; 6 x 9 in.; illustrated. Remarkable results are claimed for this spader in excavating stiff clay in trenches, open cuts and tunnels, in which work it takes the place of the hand pick, as well as the hand spade or shovel.—Advertiser.

Small Steam Turbines. Allis-Chalmers Co., Milwaukee, Wis. Bulletin No. 1123. Pp. 15; 8 x 10 in.; illustrated. These turbines are suitable for driving condenser auxiliaries, exciters, small generators, etc.

Type QC-3 Quick Break Lever Switches up to 600 Volts and 1,000 Amperes. General Electric Co., Schenectady, N. Y. Bulletin No. 47,326. Pp. 7; 8 x 10 in.; illustrated. Describes the location as well as dimensions of these switches on switchboards.—Advertiser.

Belted Alternating Current Generators. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin No. 1099B. Pp. 12; 8 x 10½ in.; illustrated. This bulletin describes types "AB" and "AH," the former being made only in the smaller sizes, and for ratings up to 300 kva., while the latter are of the pedestal-bearing type.—Advertiser.

Distribution Transformers. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin 1109, superseding Bulletin No. 1088. Pp. 12; 8 x 10½ in., illustrated. These transformers have ratings of 200 kva., and smaller, suitable for lighting and power purposes.—Advertiser.

The following bulletins have recently been issued by the **Sullivan Machinery Co.,** of Chicago, Ill. Bulletin No. 79-C describes Sullivan ironclad coal cutters for room and pillar and longwall mining; Bulletin 79-D describes Sullivan ironclads, class "CE-7" for room and pillar mines; Bulletin 79-E is descriptive of Sullivan longwall ironclads, and Bulletin 79-F, on Sullivan ironclad coal cutters has sections on motors, driving gear, cutters and feed. These bulletins are all 6 x 9 in. and are well illustrated.—Advertiser.

Pyro-Porous Gas Filter. Uehling Instrument Co., Paterson, N. J. Bulletin 113. Pp. 4; 6 x 9 in.; illustrated. Describes how the filter excludes soot and dirt from the gas sampling lines.

O-B Arc Weld Bonds. The Ohio Brass Co., Mansfield, Ohio. A 2-page folder describing the new O-B A.W.-7 and 8 bonds, manufactured by the company.—Advertiser.

Recent Patents

Wood Preservative. Robert A. Leam, Yellow Springs, Ohio, 1,404,128. Jan. 17, 1922. Filed March 28, 1921; serial No. 456,162.

Boiler Feed-Water Purifier. Charles E. Sargent, Indianapolis, Ind., 1,400,993. Dec. 20, 1921. Filed Aug. 9, 1919; serial No. 316,290.

Miner's Carbide-Lamp. I. I. Billings, Marial, Ore., 1,401,129. Dec. 27, 1921. Filed Aug. 7, 1917; serial No. 184,895. Renewed May 5, 1921; serial No. 467,126.

Flotation Apparatus and Process. Frederick D. Gross, R. P. Atkins and J. W. Bucher, Denver, Colo., 1,401,535. Dec. 27, 1921. Filed Nov. 5, 1919; serial No. 335,951.

Coming Meetings

New York State Coal Merchants' Association is holding its annual meeting at Richfield Springs, N. Y., Sept. 7-9. Executive secretary, G. W. F. Woodside, Arkay Bldg., Albany, N. Y.

Coal Mining Institute of America will meet Dec. 13, 14 and 15 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., 911 Chamber of Commerce Bldg., Pittsburgh, Pa.

Alabama Mining Institute will hold its next meeting Oct. 3 at Birmingham, Ala. Secretary, J. L. Davidson, Birmingham, Ala.

Coal and Industrial Exposition under the auspices of the Huntington Chamber of Commerce will be held Sept. 18-23 in the Chamber of Commerce Bldg., Huntington, W. Va.

The West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers will hold its annual meeting in connection with the Coal and Industrial Exposition at the City Hall, Huntington, W. Va., Sept. 19-22. Secretary, H. Smith. 212 Robson Pritchard Bldg., Huntington, W. Va.

National Exposition of Chemical Industries will hold its eighth national exposition at the Grand Central Palace, New York City, Sept. 11-16. Manager, Charles F. Roth, Grand Central Palace, New York City.

American Mining Congress. Twenty-fifth annual convention and exposition of mines and mine equipment will be held at Public Hall, Cleveland, Ohio, Oct. 9-14. Executive offices, the Hollenden Hotel; E. C. Porter, convention manager.

National Exposition of Power and Mechanical Engineering will be held at the Grand Central Palace, New York City, Dec. 7-13. Manager, Charles F. Roth, Grand Central Palace, New York City.

American Institute of Mining and Metallurgical Engineers will hold its fall meeting during the week of Sept. 25 at San Francisco, Cal. It is proposed to arrange for a party to leave New York on Sept. 10, stopping at different cities en route. Secretary, F. F. Sharpless, Engineering Societies Building, New York City.

American Chemical Society is holding its annual fall meeting Sept 4-9 at Pittsburgh, Pa.; divisional meetings will be held at Carnegie Institute of Technology and general meetings at Carnegie Music Hall.

The Rocky Mountain Coal Mining Institute will hold its next meeting at Glenwood Springs, Col., Sept. 7-9. Secretary, F. W. Whiteside, Denver, Col.

American Gas Association will hold its annual meeting Oct. 23-28 at Atlantic City, N. J. Secretary-Manager Oscar H. Fogg, 130 East 15th Street. New York City.